Scotland's Coastal Heritage at Risk Project
Findhorn Bay boat graveyard

June 2017

Data Structure Report

Sunrise over Findhorn. Photo by Michael Sharpe.

SCAPE
Scottish Coastal Archaeology and the Problem of Erosion

LOTTERY FUNDED
MAOINICHTE LEIS
A' CHRANNCHUR

University of St Andrews

Nautical Archaeology Society

THE CROWN ESTATE

HISTORIC ENVIRONMENT SCOTLAND
ÀRAINNEACHD EACHDRAIDHEIL ALBA

Period of fieldwork	11th– 12th July 2015
Local Authority	Moray
Parish	Dyke & Moy
NGR	NJ 03307 63710

The project was run and supervised by Joanna Hambly and Ellie Graham of the SCAPE Trust as part of the Scotland's Coastal Heritage at Risk Project (SCHARP). Michael Sharpe of the North of Scotland Archaeological Society (NoSAS) and Tim Negus of Findhorn Heritage assisted with the organisation and coordination of the project, Michael undertook wood speies identification for some wrecks, and Tim carried out additional historical research. Training was provided by Joanna and Ellie of SCAPE and Steve Liscoe of the Nautical Archaeology Society (NAS). Eddie Martin (E M photo) carried out a low-level aerial survey and stitched the images together to create a photomosaic. Jonie and Richard Guest of NoSAS offered additional site supervision. Site recording was undertaken by volunteers from NoSAS and the Findhorn community.

Site volunteers:

Shona Christie
Sue Finnegan
Timothy Finnegan
Andrew Gillespie
Hamish Grigor
Jonie Guest
Richard Guest
Helen Innes
Mike Lamont
Paul McCallum
James Nasmith
Tim Negus
Christine Preece
Emma Robbie
Michael Sharpe
Richard Somers Cocks
Margaret Tointon
Vic Tointon
Tanya Wilson
Steve Worth

Drawings were digitised by:

Tim Negus
Paul McCallum
Steve Worth
Michael Sharpe

Acknowledgements:

The SCHARP Project is funded by Historic Environment Scotland, the Heritage Lottery Fund and the Crown Estate and is supported by the University of St Andrews.

Contents

Abstract

As part of the Scotland's Coastal Heritage at Risk Project, a survey was carried out of a wooden fishing boat graveyard at Findhorn Bay in partnership with Findhorn Heritage and the Nautical Archaeology Society (NAS).

Site recording included a total station survey locating the remains in relation to the OS National Grid, a drone aerial survey and the creation of detailed written, photographic and drawn records of the remains of 30 wooden fishing boats. Local history and archival research was undertaken.

The project created a record of the vessels and their condition for future monitoring and identified the boats as the remains of some of the herring fishing fleet which belonged to the villages along the Moray coast. The results have illustrated the complex picture of the decline of the local herring fishery in the small villages of this coast in the early years of the 20th century.

The project has been presented at conferences and disseminated online through SCHARP networks, and in due course will be submitted for publication to the International Journal of Nautical Archaeology.

Background to the project

In February 2014, as part of SCHARP, a survey and research project was carried out at the Loch Fleet boat graveyard, led and coordinated by SCAPE and the NAS, with the participation of volunteers from NoSAS and the NAS. One volunteer, Michael Sharpe, then nominated a boat graveyard at Findhorn Bay for similar investigation and prepared an initial report summarising the site.

Initial research showed that there was very little information about the site in the Moray Historic Environment Record (HER) or in the National Monuments Record (NMR) other than one wreck noted from aerial photos and records of losses for 27 craft on Findhorn Bar through the 19th and 20th centuries. Local sources related that the vessels were abandoned on the shore at the outbreak of the First World War.

Following a site visit in July 2014, a project was developed by SCAPE, Michael Sharpe and Findhorn Heritage to survey and record the vessels in partnership with the Nautical Archaeology Society (NAS).

Project aims and objectives

- Create a detailed and comprehensive record of the vessels before they deteriorate further;
- Create a record of the vessels' condition which can be used as a basis for future condition monitoring;
- Research the history of the vessels which comprise the boat graveyard;
- Provide an opportunity for learning and involvement for the local community, SCHARP volunteers, and NAS members;
- Share the results with the Moray Council HER and Canmore;
- Publicise the results of the project through the SCHARP networks.

Project organisation and participation

A total of 20 volunteers were involved in planning and organising the project and in undertaking the fieldwork. Training in the principles of recording and site survey was delivered at the start of the fieldwork and the partnership with the NAS allowed volunteers the opportunity to gain an accredited qualification. Thanks to support from Historic Environment Scotland, five volunteers completed the Introduction to Nautical Archaeology course.

A community drop in event was held during the fieldwork to collect oral history about the site and the history of fishing locally. This resulted in the identification of contemporary photos of the vessels on the shore at Findhorn Bay.

Four volunteers also received training in illustration software and digitised the drawings of the vessels.

SCAPE staff and NoSAS members presented the results of the Findhorn Bay and Loch Fleet projects at the NAS Annual Conference 2014, and at the Highland Archaeology Festival Conference 2015. NoSAS members and Findhorn Heritage jointly delivered a talk about the project at the SCHARP Conference 2016.

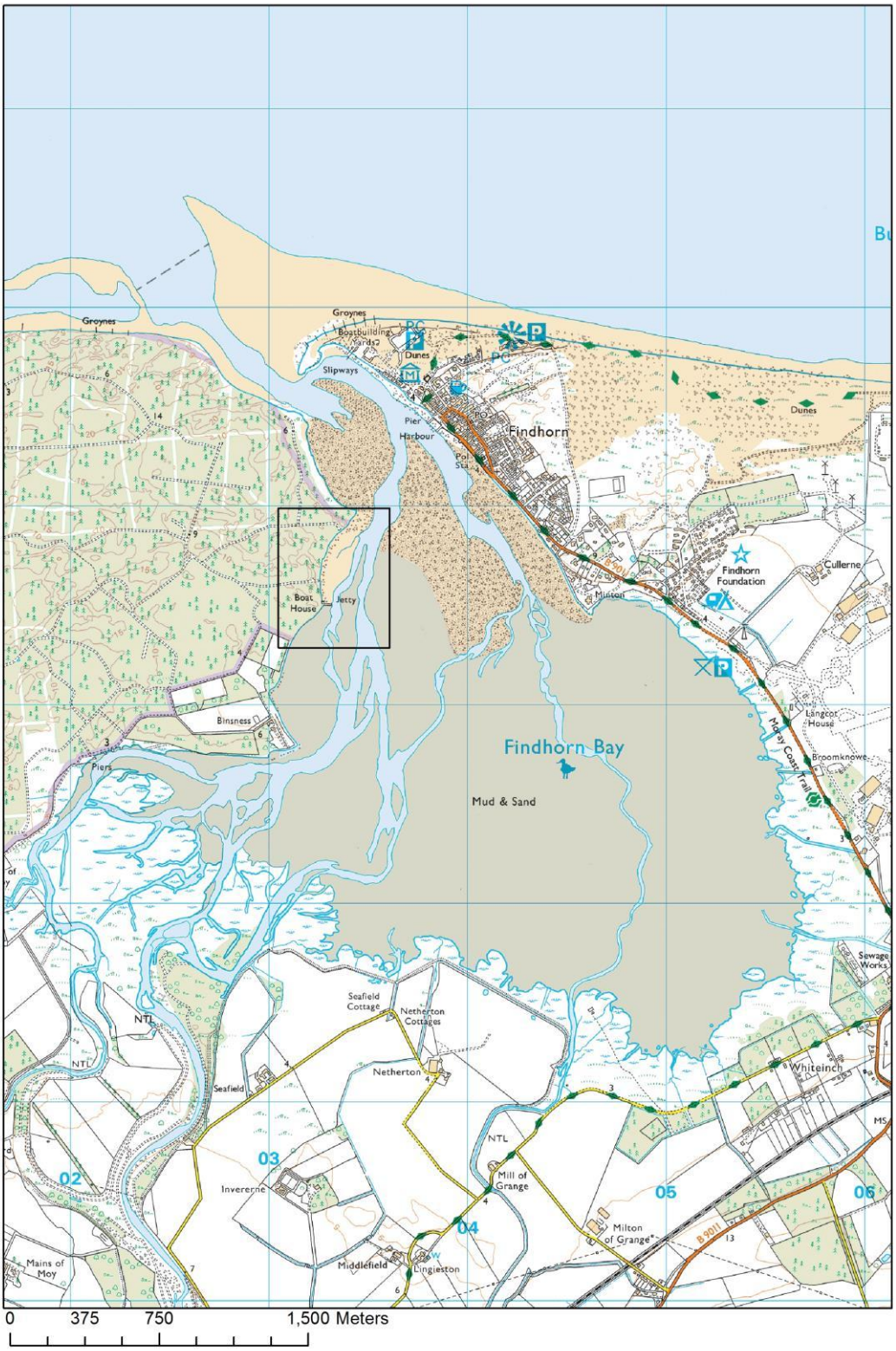

Figure 1: Location map. © Crown Copyright/database right 2015. An Ordnance Survey/EDINA supplied service.

Site location and remains

The site comprises a group of at least 30 vessels lying across an area of 600m x 50m in a sheltered sand and shingle embayment on the west bank of the River Findhorn in Findhorn Bay, around 1km north of Binsness centred on NJ 03310 63710 (Figure 1).

The vessels are partially buried in sand and beach sediment. Fourteen boats are recognisable as such with wooden elements including both keels and collapsed fragments of hull structures as well as occasional upstanding timbers, including the remains of frames, stem posts and stern posts. Boilers lie in close proximity to 8 of the remains. A further 16 vessels are indicated on the shore only by large ballast mounds which likely obscure more extensive remains. Five smaller mounds of stone are not thought to indicate the locations of vessels.

Methodology

Preparation

An initial site visit was undertaken by Michael Sharpe in April-May 2014 and a summary report on the site was prepared. In July 2014, SCAPE first visited the site with Michael and Tim Negus of Findhorn Heritage and subsequently returned with Steve Liscoe of the NAS in February 2015. At this point an initial site survey was undertaken with a Leica TC407 total station theodolite and tied in to the national grid using identifiable points on current OS mapping.

All accessible features were photographed and their locations recorded as polygons or polylines as appropriate using the total station. This level of recording was deemed sufficient for 16 large ballast mounds, 5 smaller stone mounds and 2 further features (a pier and a line of wooden posts). Four detached timber elements were recorded separately using the total station; two were described as part of the adjacent wrecks, and two were recorded individually in more detail.

The 11 best preserved accessible boats were selected for further survey of which five were chosen for detailed recording. At least two nails were attached to each of these five vessels to allow future records to be related to this survey. At the same time seaweed was cleared from the exposed elements in order to reveal details of the vessels for recording.

In October 2015 Eddie Martin carried out a drone survey of the site, and created a geo-rectified, highly detailed photomosaic of the whole site (Figures 2, 3 & 4, also available online at http://www.gigapan.com/gigapans/179909).

On-site survey and recording

The detailed survey was carried out in July 2015 with a team of volunteers and recorded 8 boats. The methodology comprised three basic elements; completion of a pro-forma wreck recording form, detailed drawing and photographic recording. The NAS hulk recording form was adapted for specific use with wooden fishing boats and on-site guidance was provided by the NAS tutor. The photographic record for each vessel included both general views of the remains and specific diagnostic details, and a photo board was used for identification. General shots showing the overall site and working shots were also taken. The five most complete vessels were drawn at a scale of 1:20 using a baseline and offsets with planning frames used for details where appropriate. Drawings included the nails which had been surveyed relative to the OS national grid, allowing them to be accurately located. Where present and appropriate, upstanding elements were drawn as elevations.

Three further well-preserved boats lie offshore on a sandbar and are only accessible at low spring tides or by boat. Two volunteers returned to the site in August 2015 to create written and photographic records of these remains.

Figure 2: Georeferenced photomosaic generated from aerial photography. Created by Eddie Martin

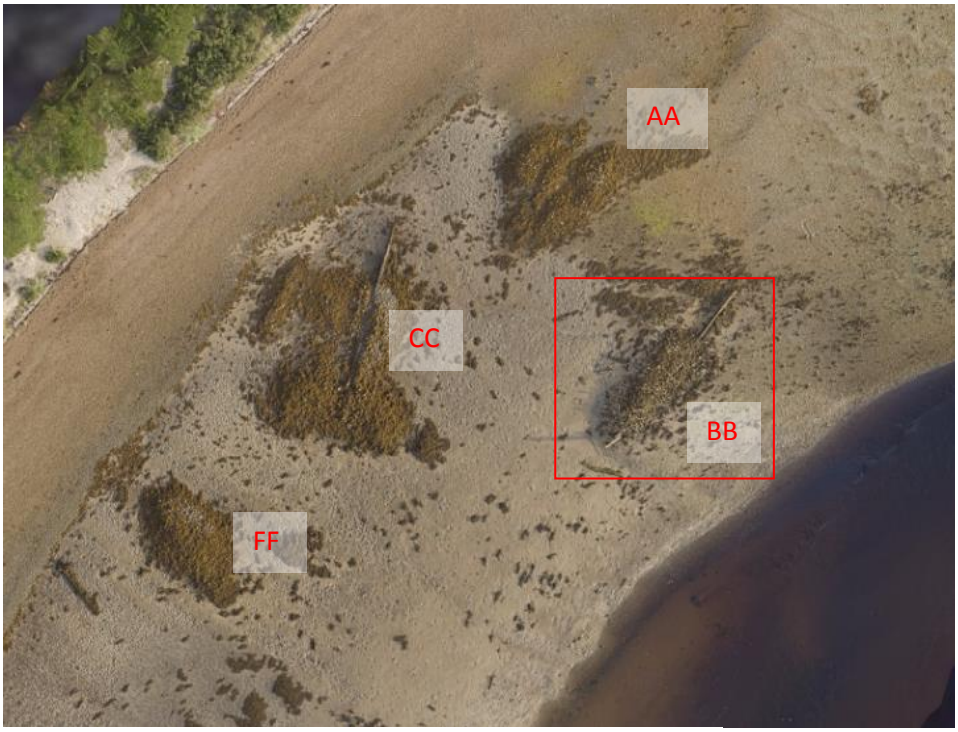

Figure 3: Detail of vessels AA, BB, CC and ballast mound FF

Figure 4: Detail of vessel BB

Post-excavation and research

The records, drawings and photos for each vessel were checked and digitised. Volunteers digitised the drawings in the free illustration package Inkscape, following a brief introduction and training in the use of the software which was delivered during the fieldwork weekend.

A series of historic photos showing fishing boats hauled up at Findhorn Bay were shared by the local community. Where the registration marks were legible, they were BF numbers, belonging to Banff and Buckie fisheries districts, rather than to the Findhorn district where the port of registration was Inverness, INS. Archival research was undertaken into the history of the fishing fleets of Findhorn, Banff and Buckie. The Annual Reports of the Fishery Board for Scotland were consulted at the Scottish Fisheries Museum, Anstruther. David Sutherland generously shared the results of his extensive research into the Scottish herring trade.

General historical background

The development of the herring fisheries in Moray

The villages of the Moray and Banff coasts were active in fishing from the medieval period onwards, focused mostly on salmon fishing on the rivers which empty into the Moray Firth from the highlands to the south, and on white fish. The Old Statistical Accounts, dating to the 1790s, (Sinclair 1793) for many of the parishes along this coast emphasise the importance of the fishing to the local economy, with salmon a major export to London, France and Spain, and white fish supplying both local markets, and other areas around Scotland.

In the early 19th century, with the introduction of Government bounties, the herring fishery expanded and developed along the Moray and Aberdeenshire coasts, and was incorporated into the already well-established profession in the existing fishing communities in these areas.

By 1845, the New Statistical Account for the parish of Kinloss (New Statistical Account 1845, vol.13) again emphasised the importance of the salmon in the river Findhorn, while the herring fishery, described as next, if not first, in importance to the parishoners, is listed as employing 60 fishermen working seven-week seasons from large boats of between eight and ten tons, and exporting 2000 barrels, earning £2000 a year. The herring fishery grew in importance in the creeks across Findhorn District; Lossiemouth, Hopeman, Burghead, Nairn, Campbelltown, Petty and Inverness through the 19th century, although fishing activity in the village of Findhorn itself remained focused on salmon fishing (see Figure 5).

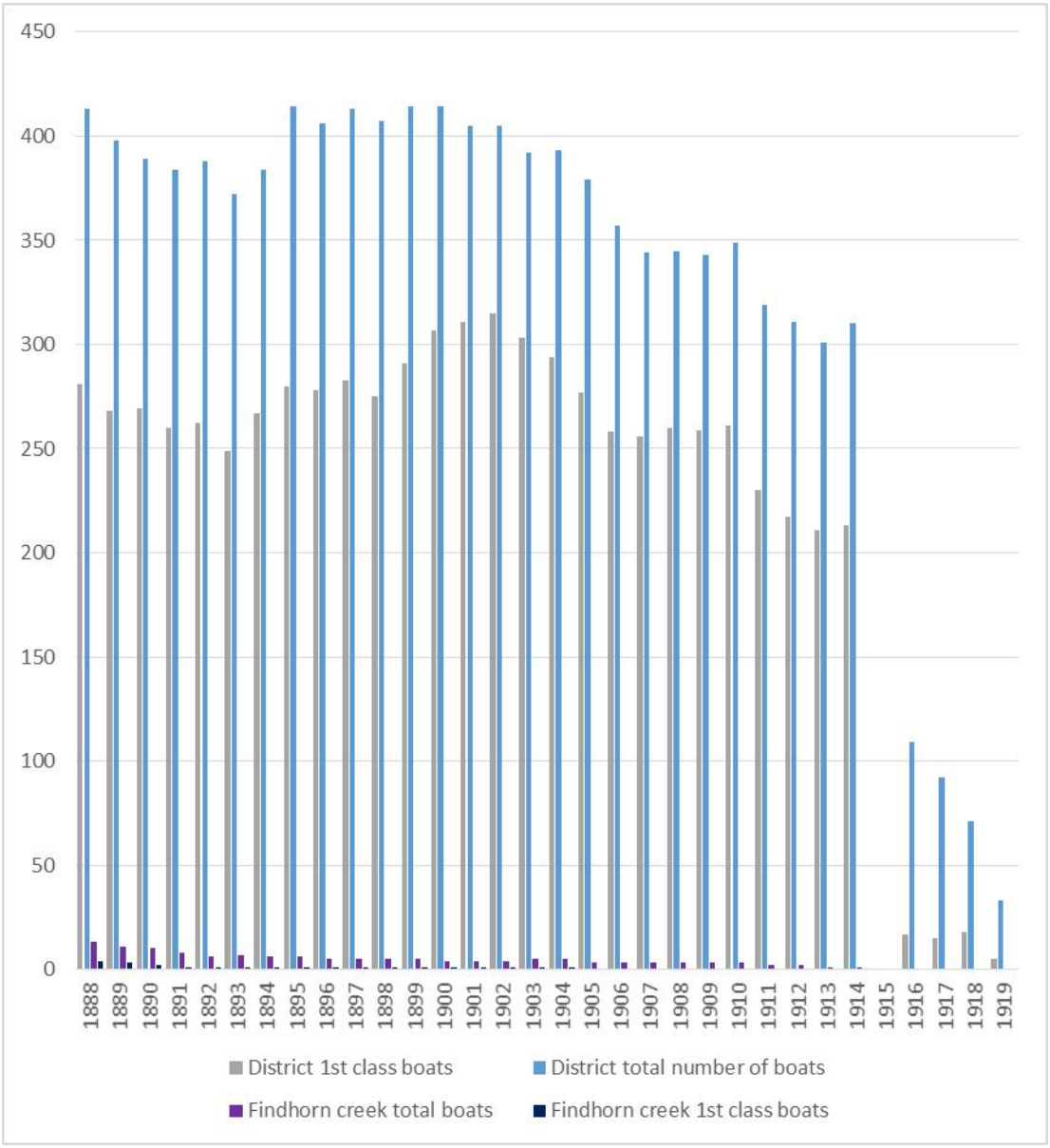

Figure 5: Fishing boats in Findhorn District compared with those employed in Findhorn Creek.

With the introduction of Government subsidies on larger fishing boats and bounties on overseas sales of herring, the fishery became a major national industry. The growth of the fleet and the importance of the herring fishery to the region (highlighted by Anson 1936) was further enabled by the development of the railways which facilitated the transport of the catch to a wider market. To meet this need, new wooden sailing drifters were developed designed specifically for herring fishing.

The development of the herring fishing boats

Herring fishing involved long seasons at sea following the shoals, beginning with the winter herring from January to March in the Forth, Wick and Stornoway. The summer season ran from May to September; fleets sailed around the Scottish coast to the Western Isles, west coast and Shetland before returning to the east coast over the course of the season, with activity peaking in August (Anson 1936, 18). Boats often also sailed south for a second season in the autumn around Yarmouth (Dorian 1980, 56).

This required the development of new styles of boats, and herring fishing was carried out from large sailing boats built for speed and manoeuvrability. By the latter part of the 19th century, east coast

herring fleets were predominantly comprised of Zulus (Tanner 2010, 15-16). Zulus were sailing herring drifters developed in Lossiemouth in 1879, a hybrid design incorporating elements of the two main types of vessel in use on the east coast; the fifie and the scaffie.

The scaffie was mostly used on the Moray coast; beamy, clinker-built with a curved stem and a raking stern. The fifie was common on the other areas of the east coast of Scotland, and in Orkney with a straight stem and stern (March 1952, 234-5). The Zulu combined elements of these two designs with a straight stem and raked stern, designed for speed, strength and manoeuvrability, and rapidly became the most popular design for sailing drifters due to its speed and ability to deliver catches to market ahead of rivals (March 1952, 253, Figure 6).

For administrative purposes, the boats of the fishing fleet were divided into three size classes:

> 1st class boats with keels of 30ft and over. This is subdivided from 1894 onwards into vessels with keels of 30-45ft and 45ft and over;
>
> 2nd class boats with keels of between 18 and 30ft;
>
> 3rd class boats with keels of under 18ft.

Study of Registries of Sea Fishing Boats in Scotland demonstrate that the larger 1st class boats used nets and formed the backbone of the herring fleet, while the smaller 2nd and 3rd class boats were generally employed in the line fishing, used for white fish.

Figure 6: Zulu Louise *model in Findhorn Heritage Centre. Photo by Michael Sharpe.*

Results

Full descriptions of the individual boats recorded are in the gazetteer below. All of the identifiable vessels in this wooden fishing boat graveyard appear to be of the class and type that were engaged in the herring fishery in the late 19th and early 20th centuries. It comprises 14 individual vessels; 12 of which (**BB**, **CC**, **JJ**, **KK**, **PP**, **SS**, **WW**, **BBB**, **GGG** (2 vessels), **JJJ** and **QQQ**) can be identified with a degree of confidence as Zulus, and two (**AA** and **UU**) which can only be described as wooden fishing boats, as too few diagnostic features were identified on site to clearly indicate the type; though it is considered likely that these are also Zulus, based on their historical context and group association. A further 16 ballast mounds (**FF**, **GG**, **HH**, **II**, **LL**, **MM**, **NN**, **QQ**, **TT**, **VV**, **XX**, **YY**, **ZZ**, **AAA**, **CCC**, **DDD**) likely indicate the location of further vessels which either are buried beneath the ballast and beach sediment or the wooden elements of which have decayed, leaving the stone ballast as the only surviving element. Five further small stone mounds (**FFF**, **MMM**, **NNN**, **OOO**, **PPP**) are not thought to indicate the locations of vessels. Two individual timbers (stem post **RR** and top rail **III**) are probably detached elements associated with the adjacent wrecks. A boiler (**OO**) which lies close to wreck **PP** is probably associated with that vessel.

For those vessels which are complete enough to give an indication of their original size (**BB**, **CC**, **JJ**, **KK**, **PP**, **WW**, **BBB**, **GGG**, **JJJ**, **QQQ**) all appear to be 1st class vessels, with surviving visible keels of 14m (46 ft) and over (i.e. of the larger of the two 1st class size sub-categories). The three vessels which lie further offshore (**JJ**, **KK** and **QQQ**) although better preserved have been less fully recorded due to the logistical constraints of their location, but appear to be of comparable size to the others. Many of the ballast mounds are similar in size to those associated with these remains, suggesting that they may be from vessels of around the same size.

All the vessels are wooden sailing boats, none have any evidence of conversion to steam power. Although small boilers lie within or adjacent to some of the wrecks, this does not indicate conversion to steam power, but that some were fitted with steam capstans, although only one capstan was recorded (part of vessel **QQQ**). Capstans were powered by these small boilers and used to assist the handling of sails and nets (Anson 1930; Steve Liscoe pers. comm.). Capstans were introduced from *c*.1884 to sailing drifters, and the additional power they provided for handling gear, sails and nets allowed the size of fishing boats to increase further (March 1952, 58-9).

March (1952, 278) describes a Zulu *Laverock* built in 1902 in Hopeman as one of the largest ever built with a 59ft (18m) keel. Three of the Findhorn Bay wrecks (**BB**, **BBB** and **PP**) are approaching this length (17m (56 ft) and over) and the three which lie offshore (**JJ**, **KK** and **QQQ**) although less fully recorded appear to be the same size or larger, possibly suggesting that these vessels were constructed at a time when drifters were increasing in size, but towards the end of the period when sailing drifters were in use.

Two further vessels (**GGG** and **JJJ**) have keels of over 16m (52 ft 6 in), although the latter is only partially exposed, so its total length has been extrapolated from the visible elements. Vessel **JJJ** is of particular interest as it is the only boat on the site which can be definitely identified as clinker-built; one visible surviving patch of planking has overlapping strakes, while several of the detached frames have a sawtooth profile (joggles). The general trend in boat building through the 1870s and 1880s was a move from clinker hulls to carvel build, coupled with an increase in size. March (1952, 253) described the development of the Zulu: “Up to about 1885 the hulls were clinker-built with a keel length of about 40ft; when carvel construction was introduced length increased to 43ft”, with the introduction of boiler and capstan for handling sails and gear allowing further increase in size. Boat **JJJ**, then, is an anomaly; with a keel of (approximately) 16.3m (53 ft 6in) this was one of the larger 1st

class vessels, usually thought of as a later stage in boat development and has a clinker hull, normally an earlier feature; furthermore, a small boiler to work with a capstan remains in position. This boat should be too large to be clinker-built, this may be an example of one of the earliest Zulus of this size and one of the earliest to be equipped with a boiler and capstan, perhaps dating to the early to mid-1880s.

This is also the only vessel (other than **GGG**, which is very fragmentary) lacking an associated ballast mound. This was initially attributed to its position south of and relatively close to the pier in front of the boat house, which is constructed of a wooden frame filled with ballast-sized cobbles, and which local information suggested had been built using ballast from these vessels. Moreover, all five of the very small stone mounds (**FFF**, **MMM**, **NNN**, **OOO** and **PPP**) lie in the vicinity of vessels **JJJ** and **GGG**, and between **JJJ** and the pier. This was initially interpreted to indicate that the hulks had been emptied of their ballast to construct or repair the pier. However, information from boat builders and sailors suggests that clinker hulls must be emptied of ballast when hauled out, as the clinker planking lacks sufficient strength to hold together under the weight of ballast when out of the water; this would be further exacerbated in the case of such a large clinker boat.

Edgar March's authoritative book on Sailing Drifters (1952) describes in detail the construction of a Zulu and the wood selected for each element. Wood species identification was undertaken by Michael Sharpe for selected elements of some of the best preserved vessels in this boat graveyard. The results are presented in Table 1 and generally corroborate March's information. March records that beech was selected for keels, which is substantiated by identification of beech keels in vessels **BBB**, **CC**, **PP**, **UU**, **WW**; however boat **BB** had a keel of larch, and a long timber, thought to be the keel of one of the two boats represented by the cluster of timbers **GGG**, was also identified as larch. In all cases where stem or stern posts were identified, they were found to be oak, which supports March's statement that oak was preferred for these elements. According to March's information, oak was preferred for frame timbers

WRECK	BOAT COMPONENT	ON-SITE IDENTIFICATION	MICROSCOPIC IDENTIFICATION
BB	Stern post	Oak	Oak (*Quercus* sp.)
BB	Lower futtocks x3	Oak	Oak (*Quercus* sp.)
BB	Lower futtocks x3	Not oak	-
BB	Keel	Not oak	Larch (*Larix decidua*)
BBB	Floor x2	Oak	Oak (*Quercus* sp.)
BBB	Stern post with gudgeons	Oak	Oak (*Quercus* sp.)
BBB	Foot of stern post	Oak	Oak (*Quercus* sp.)
BBB	Keel	Beech	Beech (*Fagus sylvatica*)
BBB	Frames x6	Oak	Oak (*Quercus* sp.)
BBB	Planking (towards stern)		Larch (*Larix decidua*)
CC	Keel	Beech	Beech (*Fagus sylvatica*)
GGG	Stern post	Oak	Oak (*Quercus* sp.)
GGG	Keel		Larch (*Larix decidua*)
III (part of JJJ)	Top rail	Oak	Oak (*Quercus* sp.)
JJJ	Stern post	Oak	Oak (*Quercus* sp.)

WRECK	BOAT COMPONENT	ON-SITE IDENTIFICATION	MICROSCOPIC IDENTIFICATION
JJJ	3x bow frames	Oak	Oak (*Quercus* sp.)
JJJ	Stern post	Oak	Oak (*Quercus* sp.)
JJJ	3x stern frames	Oak	Oak (*Quercus* sp.)
JJJ	Mizzen mast step	Oak	Oak (*Quercus* sp.)
JJJ	Port side planking	Softwood	Larch (*Larix decidua*)
JJ	Stern post	Oak	Oak (*Quercus* sp.)
JJ	Frame 1	Oak	Oak (*Quercus* sp.)
JJ	Frame 2	-	Larch (*Larix decidua*)
JJ	Frame 3	Softwood	Larch (*Larix decidua*)
JJ	Starboard top rail	Oak	Oak (*Quercus* sp.)
JJ	Beam towards bow	Softwood	Larch (*Larix decidua*)
KK	Frame x4	Oak	Oak (*Quercus* sp.)
KK	Frame x4	Softwood	Larch (*Larix decidua*)
PP	Keel	Beech	Beech (*Fagus sylvatica*)
PP	Stern post	Oak	Oak (*Quercus* sp.)
PP	Stern deadwood	Oak	Oak (*Quercus* sp.)
SS	Frames x3	Not oak	Larch (*Larix decidua*)
SS	Keel	Not oak	?
UU	Keel	Beech	Beech (*Fagus sylvatica*)
WW	Keel	Beech	Beech (*Fagus sylvatica*)

Table 1: Wood species identification, Michael Sharpe.

Discussion

Historical research

Findhorn Bay harbour and safe haven

The natural harbour of Findhorn Bay was described in the New Statistical Account (1845, vol.13, 211) as 'among the safest on the coast', despite the difficult approach caused by Findhorn bar, with a water depth of 13 to 17 feet at stream tides 'greater than that of any other harbour on the coast from Aberdeen to Inverness'.

The bay was used as a safe haven in winter and at times of stormy weather by the fishing fleets from villages along the coast which lacked adequate harbour facilities for the large 1st class sailing drifters. A report in the Forres Gazette on 18th Feb 1914 recorded high tides accompanied by a strong westerly gale, causing damage to vessels in harbour, and stated that 'the herring boats were driven from their winter shelter on the Binsness shore and cast adrift'.

Historical photos

The use of the shore on the west side of Findhorn Bay as a safe haven is further attested by a photograph (Figure 7) dating to the late 19th/early 20th century held by Findhorn Heritage, which shows a fleet of 1st class size Zulu herring drifters hauled up on the shore at Binsness, opposite the village of Findhorn. Where legible, all the registration marks are Banff numbers (BF), suggesting that the vessels which used this shore belonged not to the Findhorn district (which were registered in Inverness (INS)), but to the adjacent fishery districts of Banff and Buckie, which comprised the ports of Crovie, Gardenstown, Macduff, Whitehills, Portsoy, Sandend, Cullen, Portknockie, Findochty, Portessie, Buckie, Buckpool and Portgordon. The only fully legible registration is BF 1039, identified by Tim Negus as the *Maggie Smith* of Portessie, built in 1883.

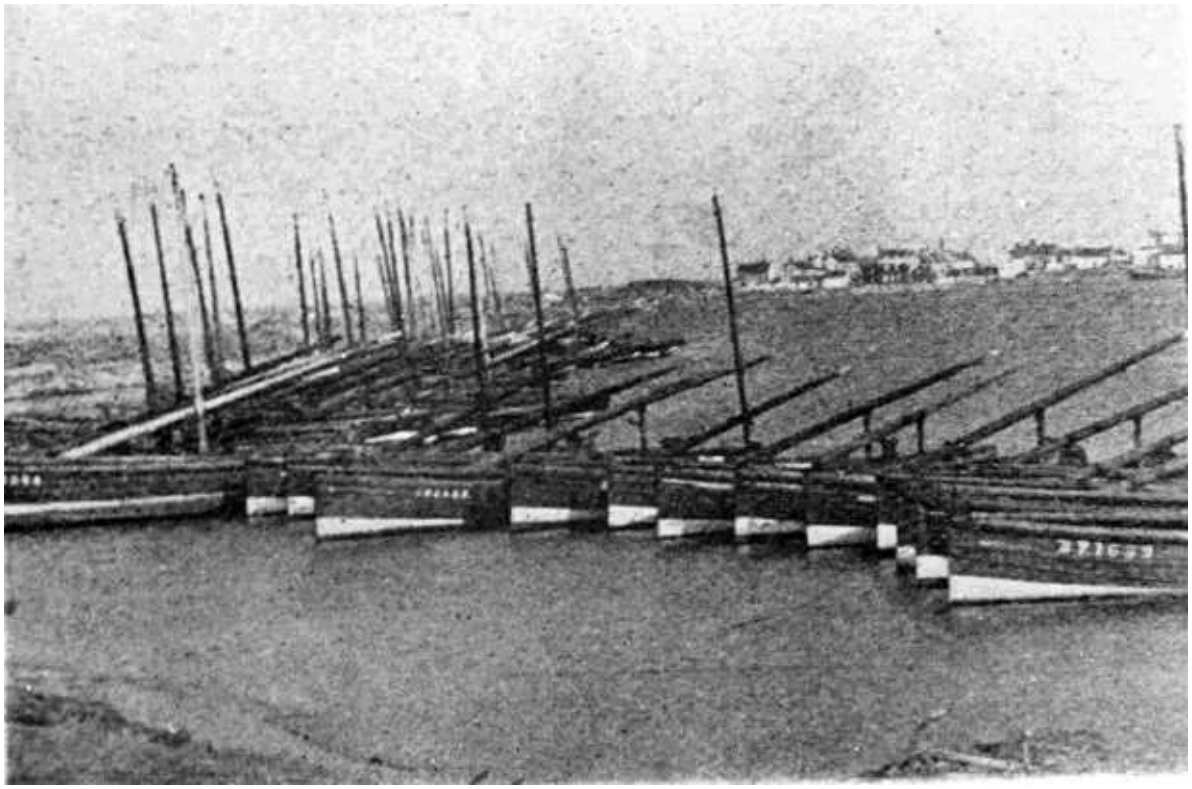

Figure 7: Zulus hauled out on west shore of Findhorn Bay opposite the village, c.1908, Findhorn Heritage.

A recently-found collection of photos belonging to a local family believed to date to August 1913 show the same stretch of coast, with several Zulus hauled up on the sands (Figure 8). By contrast to the earlier image, the vessels in this photo are not ranked in a straight line, but form haphazard groups, and although they retain their masts, there are signs of disrepair.

Figure 8: Hauled out Zulus on the west shore of Findhorn Bay. The boat in the middle seems to have lost its top rail. Henrietta Grant-Peterkin / Forres Heritage.

Other photographs in this collection (Figure 9) show a family group playing on the beach, and these confirm a summer date (i.e. in the middle of the herring season) demonstrating that these vessels did not join the herring fleet that year.

Figure 9: A family group playing around Zulu boats in summer 1913. The identification of the children confirms the date. Henrietta Grant-Peterkin / Forres Heritage.

Archival research

The Annual Reports of the Fishery Board for Scotland, held in the Scottish Fisheries Museum in Anstruther were consulted. These record the number of boats and the number of resident fishermen and boys in each fisheries district, divided by class. From 1882 the district figures were divided into villages. However, it has not been possible to identify the specific villages to which these boats belonged, and it is likely that they came from several of the small villages along the Moray coast. Research undertaken for this project has therefore focused on district level, for Banff, Buckie and Findhorn.

The number of 1st class vessels in the Banff district (Figure 10) declined slightly from 1882 onwards, with fairly minor variation until the collapse in the number of registered vessels with the start of the war. However, examination of the two sub-categories of 1st class vessels shows that the overall numbers were maintained by growth in the larger 45ft and over category, which peaks at 202 in 1911. The numbers of smaller vessels of between 30 and 45ft declines from 1894 onwards (coinciding with the introduction of the larger sub-division) gradually at first, but steeply from the middle of the first decade of the century, and is a very insignificant element of the fishing fleet by 1914, with only 11 vessels of this size operating in the district by the outbreak of the war.

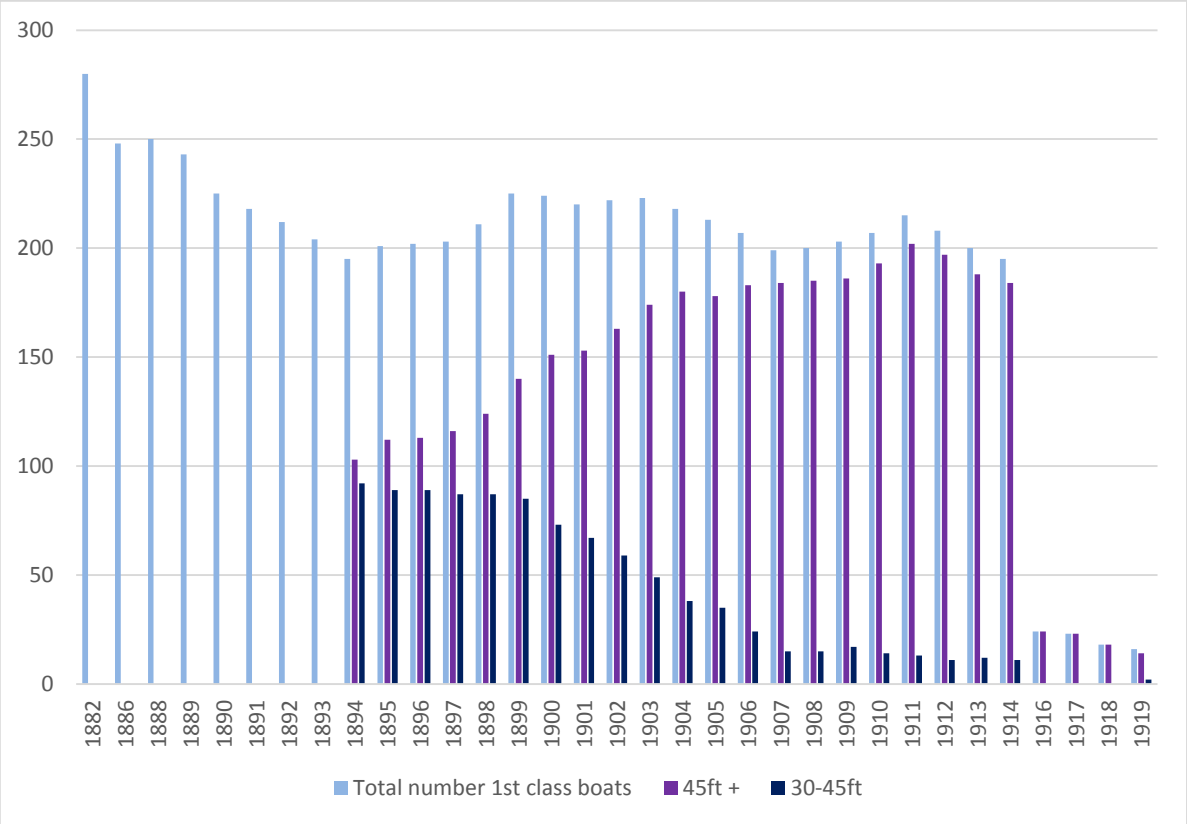

Figure 10: Data from the Annual Reports of the Fishery Board showing the total number of 1st class boats and the two sub-categories for Banff district, showing the steep decline in 30-45ft vessels.

This is echoed by the records for the district of Buckie (Figure 11). The overall numbers of 1st class vessels up to 1914 are maintained by the larger sub-category of 45ft and over, while the numbers of smaller 30-45ft boats suffer a steady, steep decline from 1894, to become an insignificant part of the fleet of single figures by 1906, so small that the First World War does not appear to have had an impact.

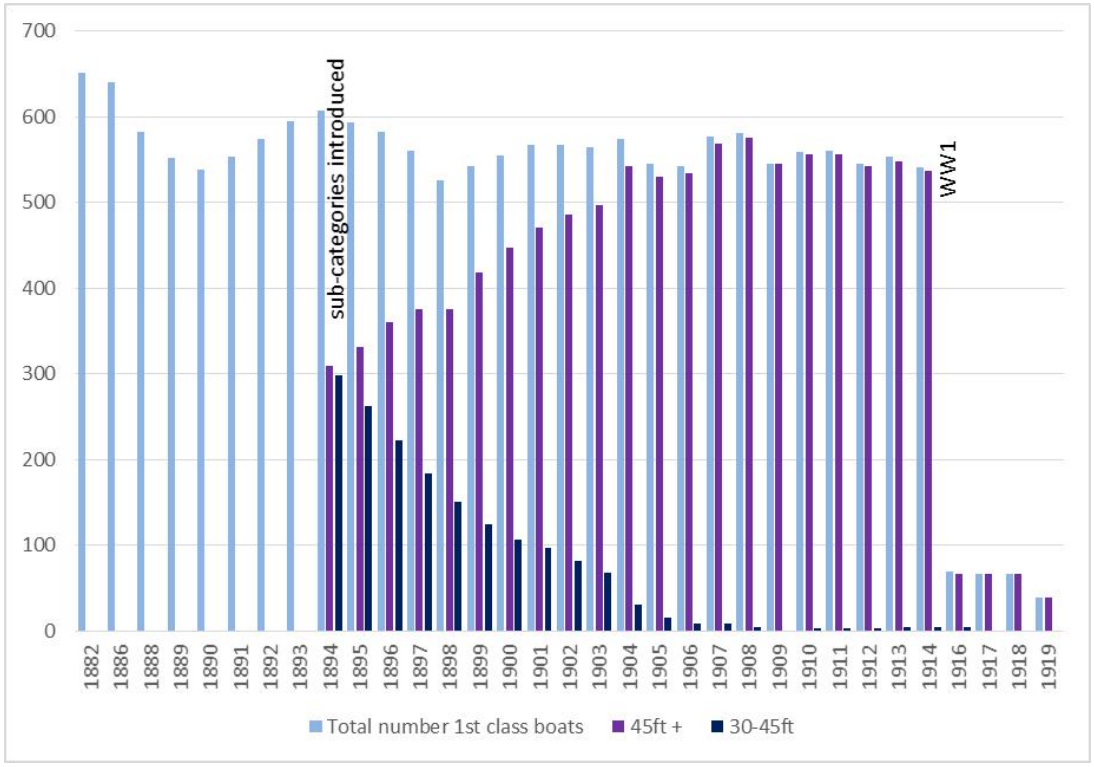

Figure 11: Data from the Annual Reports of the Fishery Board showing the total number of 1st class boats and the two sub-categories for Buckie district, showing the steep decline in 30-45ft vessels.

Findhorn district (Figure 12) shows a very similar pattern with the larger vessels broadly maintaining their numbers to 1914, while the 30-45ft boats dwindle gradually at first through the last years of the 19th century, and more steeply in the first decade of the 20th century to almost nothing prior to the outbreak of the war.

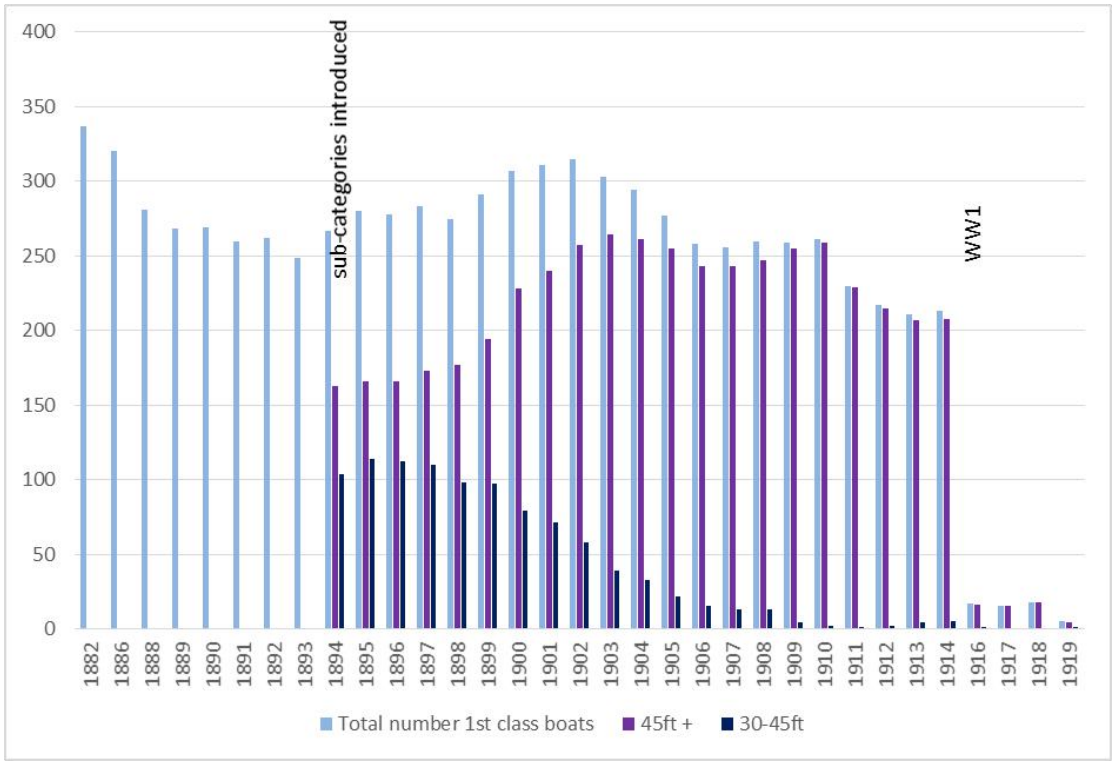

Figure 12: Data from the Annual Reports of the Fishery Board showing the total number of 1st class boats and the two sub-categories for Findhorn district, showing the steep decline in 30-45ft vessels.

The records for Findhorn creek demonstrate that with only one 1st class boat recorded from 1891 onwards, the fishermen here were not engaged in the herring fishery; fishing activity in Findhorn village was concentrated on salmon. Although the herring fishery may have been of importance at district level, Findhorn village was not active in it, confirming the photographic evidence that the vessels visible in the historic images did not belong to Findhorn village or the district.

The Reports also record the numbers of resident fishermen (Figure 13) and reflect that although the composition of the fleet may be changing, with a move from the smaller boats to larger, the overall numbers of resident fishermen in the districts of Findhorn, Banff and Buckie are maintained up to the outbreak of war in 1914.

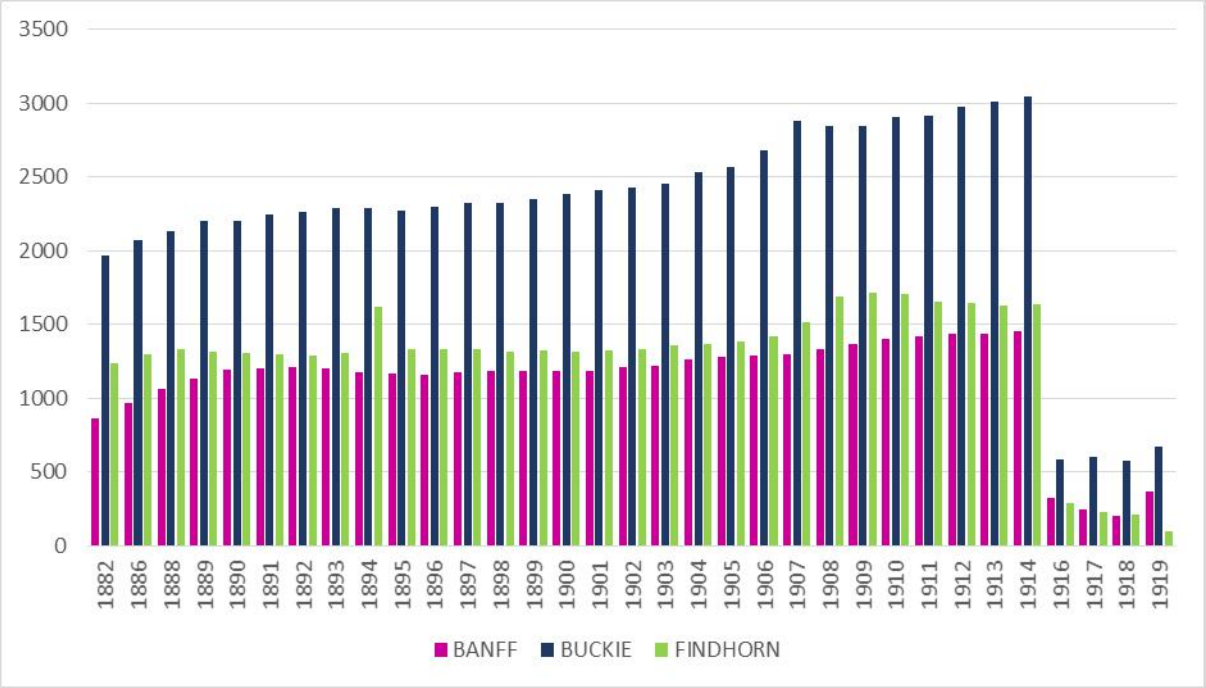

Figure 13: Data from the Annual Reports of the Fishery Board showing the total number of resident fishermen and boys in each district, showing overall numbers are maintained up to 1914.

David Sutherland has conducted extensive research into the Scottish Herring Fishery between 1810 and 1914, with particular focus on the continental trade and exports to Europe and has generously made his data available on his project website (http://www.scottishherringhistory.uk/index.html). These include figures for the export and production of herring from all fisheries districts. Against a background of significant variability, reflecting the natural fluctuation of the herring and other historical events, the figures for the three districts of the Moray coast (Banff, Buckie and Findhorn) show that although the number of vessels and the number of fishermen may have been maintained, production fell steeply from 1898 onwards (Figure 14). This contrasts with the national picture, the total herring production around Scotland shows a general trend of growth through the same period (Figure 15).

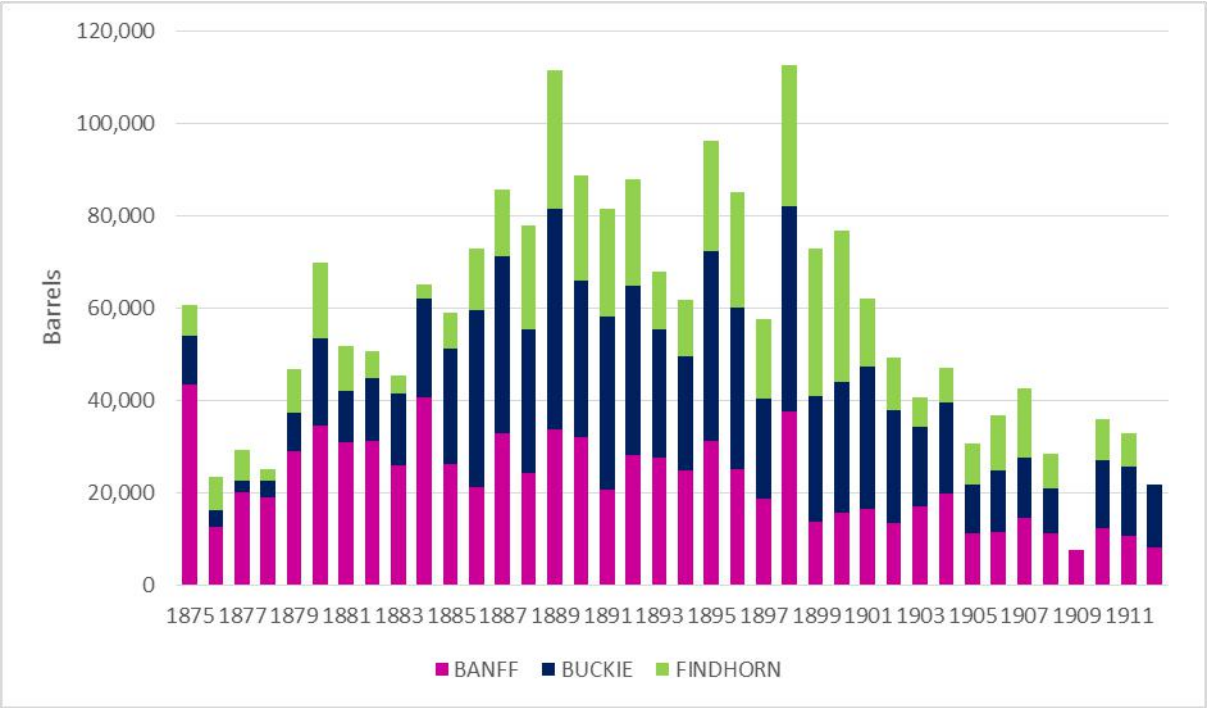

Figure 14: Data from the Annual Reports of the Fishery Board showing the number of barrels produced by Banff, Buckie and Findhorn Districts. Data from http://www.scottishherringhistory.uk/statistics/AnnualExport.html, 23/05/2017

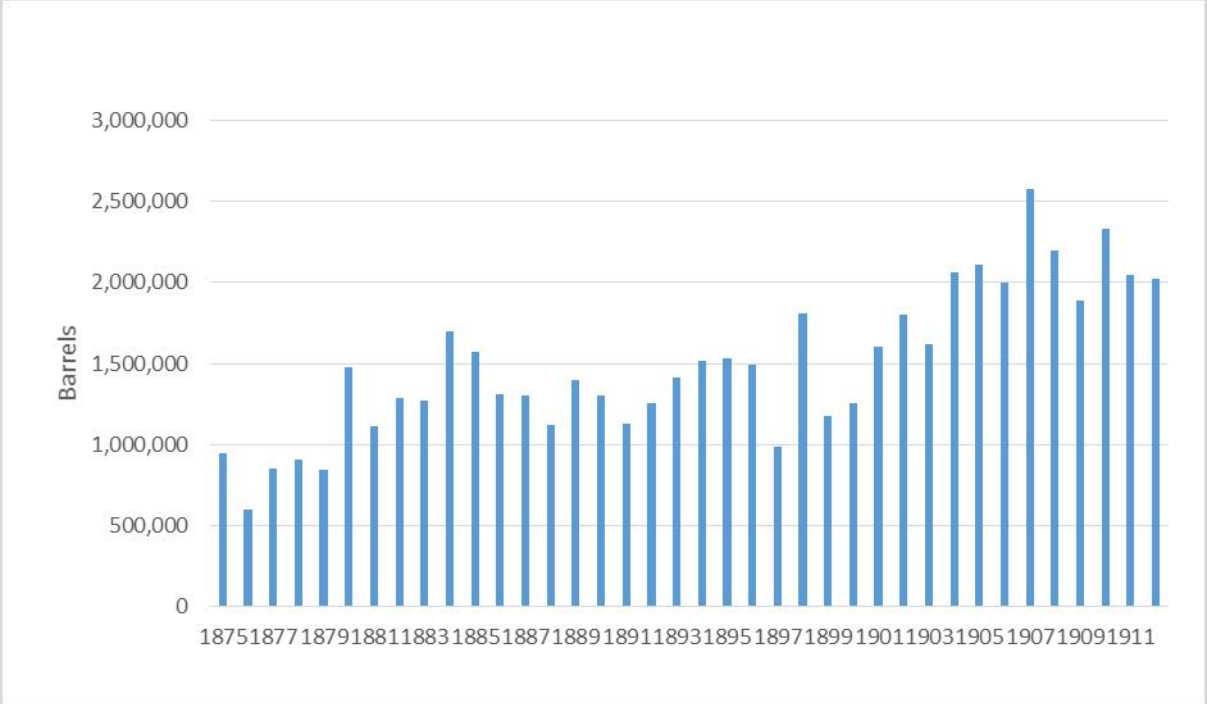

Figure 15: Data from the Annual Reports of the Fishery Board showing the number of barrels produced across Scotland. Data from http://www.scottishherringhistory.uk/statistics/AnnualExport.html, 23/05/2017

His analysis of the contribution of different vessel types to the catch has shown that by 1914, steam vessels were catching more than 60% of total, with motorised fishing boats also starting to emerge. Over the eight years prior to the outbreak of the First World War, the 70/30 split of the catch in favour of sail power over steam had been completely reversed, so that by 1913 it was responsible for less than 30% (Figure 16).

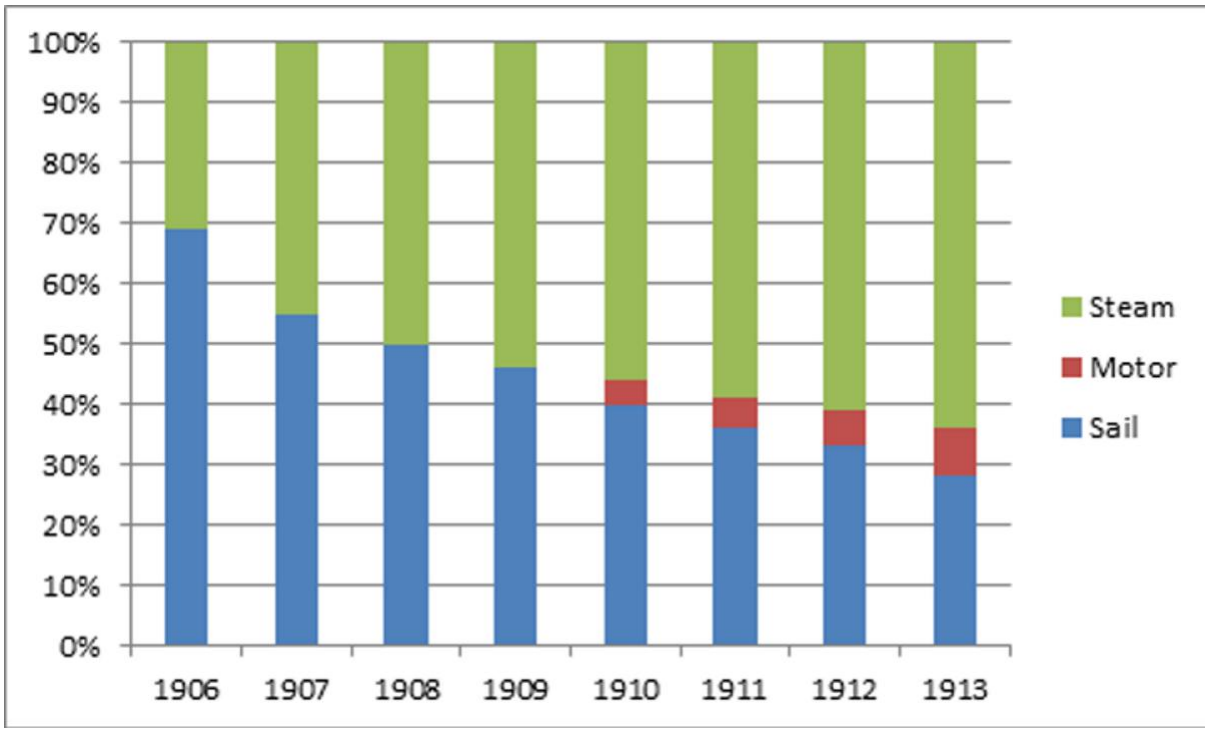

Figure 16. Percentage of total catch by different types of vessel. Sutherland, http://www.scottishherringhistory.uk/statistics/Extracts.html#Figure12, 23/05/2017

Moreover, examination of local boat builders' records further emphasises this shift from sail to steam. From the middle of the 1900s, the output of MacIntosh's yard at Buckie changes from Zulus to steam drifters (Crawford 2010, 204-5) with an associated glut of sailing drifters over the following few years attested by boats offered for sale in local newspapers. In April 1909, the Banff Advertiser advertised 12 Zulus for sale, one of which was still being offered 8 months later; and in December of the same year a 1st class Zulu was up for auction with a £15 reserve.[1] During these years, the boat graveyard at Findhorn Bay was staring to develop against this backdrop of dwindling demand for the now-obsolete sailing drifters.

Further analysis by David Sutherland of the specific figures on employment and activity in each district supports a picture of decline in the industry in Moray in the early years of the 20th century. Data on the employment of workers (fishermen, curers, coopers, gutters and labourers) and boats was gathered annually in each district during its week of greatest activity and can be interrogated online (http://www.scottishherringhistory.uk/statistics/Employment.html, 23/05/2017). Our three districts show broadly similar trends in the number of boats and fishermen employed in the period of interest.

In Banff, from the mid-1870s there is a cycle of peaks and troughs reflecting the variability of the herring fishery, but from 1888 there is a steady decline in the number of boats for 23 years until 1911, before a brief resurgence in the years immediately prior to the First World War. In Buckie, the number of boats collapsed in the 1870s, but recovered to peak in 1899, followed by steep decline through the next decade then some increase from 1910 until the start of the war. Findhorn likewise enjoyed a boom in the 1860s, followed by a steep drop in the 1870s, rising to a peak in 1900 before dropping through the decade before a small rise from 1909 until the outbreak of war. The numbers of fishermen employed in each district mirror the statistics for the boats.

[1] Thanks are due to Tim Negus for researching and passing on this information.

The data contained within the Fishery Board Reports reveals a complex picture of the state of the herring fishery on the Moray coast in the late 19th and early 20th centuries. Although the fishery remained important up to the outbreak of the First World War, the composition of the herring fishing fleet was changing with the development of new, bigger vessels rendering smaller boats redundant. Although the 1st class herring fleet maintained its numbers, the smaller 30-45ft vessels had dwindled to nothing by the outbreak of hostilities. The steady overall numbers of boats and fishermen working the fishery which are listed in the Annual Reports appear to mask a more complex picture of the state of the fishery, which was suffering a drop in production and a decline in activity and employment across the Moray coast through the first decade of the 20th century, though there are hints of a recovery immediately prior to the start of the war. The state of the local fisheries contrasts with the national picture of growth in the industry. The smaller fishing ports which characterised much of the Moray coast declined as boats got bigger, and even the larger ports such as Buckie, began to decline relative to the bigger harbours of Peterhead and Fraserburgh.

Conclusion

In this boat graveyard, all of the identifiable vessels appear to be the wooden sailing drifters, predominantly 1st class Zulus, that formed the core of the herring fleet on the Moray coast in the late 19th and early 20th centuries.

The period between 1880 and 1895 was the apogee for the sail fishing fleet on this coast (Anson 1936, 210) and the industry was thriving at the turn of the century. However, as boat building technology and the introduction of steam capstans just prior 1900 permitted the construction of larger vessels, the composition of the fleet changed. The older smaller vessels were rendered obsolete and replaced with bigger boats, likely following a pattern of natural attrition as older wooden vessels came to the end of their working lives.

The introduction of steam power followed the increase in boat size and even larger steam drifters joined the herring fleet from *c.*1900, and in increasing numbers through the decade. These changes in the fleet rendered redundant some of the smaller ports which couldn't accommodate larger vessels. Fishing became concentrated in the larger ports equipped with better harbours such as Macduff and Buckie as the steam drifters came to dominate the herring fishery, and the sailing vessels declined over the period.

Documentary and photographic evidence indicates that the west shore of Findhorn Bay was used as a winter shelter for some of the herring fleet of the Moray coast. The increase in the size of the fishing boats highlighted the shortcomings of many of the smaller harbours in the districts of Findhorn, Banff and Buckie (Anson 1936) necessitating the use of such safe havens for larger boats.

Although the national picture was one of a burgeoning industry and record catches with the introduction of steam, the fishery districts of the Moray coast were in decline, due in part to the obsolescence of the wooden sailing drifters in the face of new technologies, and the inadequacies of many of the local harbours for the new types of vessels. Smaller fishing villages, including the Moray fisheries diminished in importance through the first years of the 20th century, as herring fishing was centralised in fewer, larger ports, prior to the outbreak of war in 1914 which precipitated a final collapse.

There appears to have been no single factor in the development of the Findhorn Bay boat graveyard. Suggestions that the boats were abandoned at the start of the war are probably an over-simplification of a more nuanced change in the herring fishery. Pre-war photographs appear to show abandoned vessels on the shore, indicating that redundant vessels were already being left on the

site of the winter safe haven prior to the outbreak of hostilities, probably as the wooden boats ceased to be profitable in the face of emergent steam drifters. With the war commencing in 1914, it seems likely that the active fleet joined the discarded vessels in their usual winter haul out, while post-war the loss of life and major social change as well as the new maritime technologies rendered the old fleet of wooden sailing boats unviable.

Publication

The results of this work will be incorporated into a paper along with the results of the survey and research into the history of the Loch Fleet boat graveyard to be submitted for publication to the International Journal of Nautical Archaeology.

*Figure 17: General view across site, volunteers working on boat **PP***

*Figure 18: Working shot of volunteers recording boat **PP**, with offshore boats **JJ** and **KK** behind*

*Figure 19: Working shot of volunteers recording boat **SS***

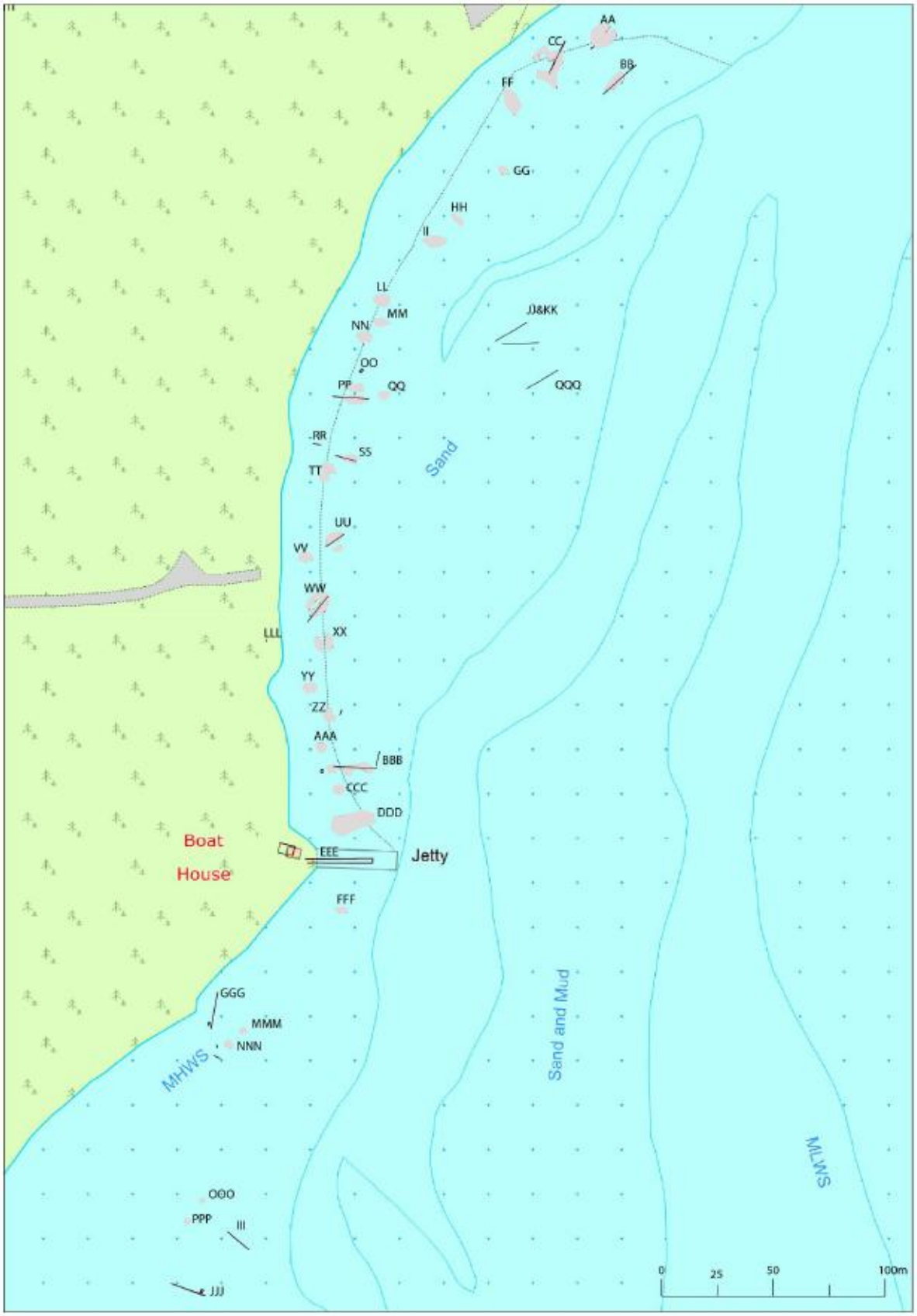

Figure 20: Site plan showing locations of wrecks. © Crown Copyright/database right 2015. An Ordnance Survey/EDINA supplied service.

Bibliography

Anson, P., 1936. *Fishing Boats and Fisher Folk on the east coast of Scotland.* London.

Crawford, J., McIntosh, G., Stewart, R., 2010, *Sail & Steam Revisited.* Lossiemouth.

Dorian, N., 1985. *The Tyranny of Tide: an oral history of the East Sutherland fisherfolk*. Ann Arbour.

Gordon, J. ed. The New Statistical Account of Scotland / by the ministers of the respective parishes, under the superintendence of a committee of the Society for the Benefit of the Sons and Daughters of the Clergy. Vol. 13, Edinburgh: Blackwoods and Sons, 1845. University of Edinburgh, University of Glasgow. (1999) The Statistical Accounts of Scotland online service: http://stataccscot.edina.ac.uk/

March, E., 1952. *Sailing Drifters: the story of the herring luggers of England, Scotland and the Isle of Man.* London.

Sinclair, Sir John. The Statistical Account of Scotland, Kinloss, Elgin, Vol. 1, Edinburgh: William Creech, 1793, University of Edinburgh, University of Glasgow. (1999) The Statistical Accounts of Scotland online service: http://stataccscot.edina.ac.uk/

Sutherland, D., 2015. *The Scottish Continental Herring Trade 1810-1914.* Website: http://www.scottishherringhistory.uk/, accessed on 23 May 2017.

Tanner, M., 2010. *Scottish Fishing Boats.* Oxford.

Gazetteer of vessels

Vessel ID AA

Dimensions (m): Length: 11 Breadth: 9.4 Height:

Vessel type: Wooden fishing boat Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:

Remains of a Zulu fishing vessel, visible as a butterfly-shaped ballast-mound formed when the wooden hull fell apart causing the stones of the ballast to settle either side of the keel. The end of the keel is visible beneath the ballast mound at the south end.

Surveyor name: Ellie Graham & Michael Sharpe

Date of survey: 27/02/2015

Figure 21: Wreck AA, butterfly-shaped ballast mound

Vessel ID AAA

Dimensions (m): Length: 4.5 Breadth: 4 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sediment and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 22: Wreck AAA, ballast mound

Vessel ID	BB				
Dimensions (m): Length:	19.6	Breadth:	3.8	Height:	1.2
Vessel type:	Zulu	Propulsion:	Sail	Construction:	Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		17.7x0.2x0.32	Stern post:	Yes		2.4x0.25x0.13
Keelson:	Yes		16.9x0.23x0.16	Rudder:	Yes		3.34x0.38x0.06
Planking:	Yes	9	2.5x10.5x0.05	Iron bolts:	Yes	2	
Stem post:	No			Gudgeons:	Yes	2	0.32x0.15x0.08
Rams horns:	No			Pintles:	Yes	2	0.18
Mast step:	Yes	2		Ballast:	Yes		
1st futtock:	Yes	18	2.53x0.22x0.07	Other visible elements:			
2nd futtock:	No			stern deadwood		1	
Floors:	Yes	19	1.82x0.77x0.09	garboard strake		1	10.1x0.18x0.04
Boiler	No			small mast step			1.01x0.26x0.1

Frame spacing (centre to centre):	0.43		
Fastenings:	Iron	Toolmarks:	
Waterproofing:	pitch	Contents:	

Description:
A 1st Class Zulu, lying on its port side. More of the upstanding starboard side hull has been lost, while the port side of the hull lies flat on the foreshore and is covered with the boat's ballast, and so is better preserved. The stem post has been lost, but the keel and keelson appear to survive to their full length. The forward part of the boat is less well-preserved, with just the keel (larch) and keelson surviving for the first c.8m. The back part is better-preserved, with 18 frames (3 identified as oak, 3 ?larch) surviving to the first futtock on the port side, and one on the starboard side. There are 19 floors, of which four are detached from the main body of the wreck. An area of planking survives on the port side at the stern, beneath the ballast and the frames. The garboard strake on the starboard side survives for 7m. No obvious knees were noted, though a curved iron strap may be a metal knee. The stern deadwood is in-situ, partially buried by the ballast. The lower part of the stern post (oak), with gudgeons attached, survives to a height of over 1m, at a steeply-raked angle with a surviving length of 2.4m. The rudder, with two pintles, has fallen from the stern post and lies next to it. The larger main mast step and the smaller mizzen mast step lies detached adjacent to the main body of the wreck.

Surveyor name: Helen Innes & Ellie Graham
Date of survey: 12/07/2015

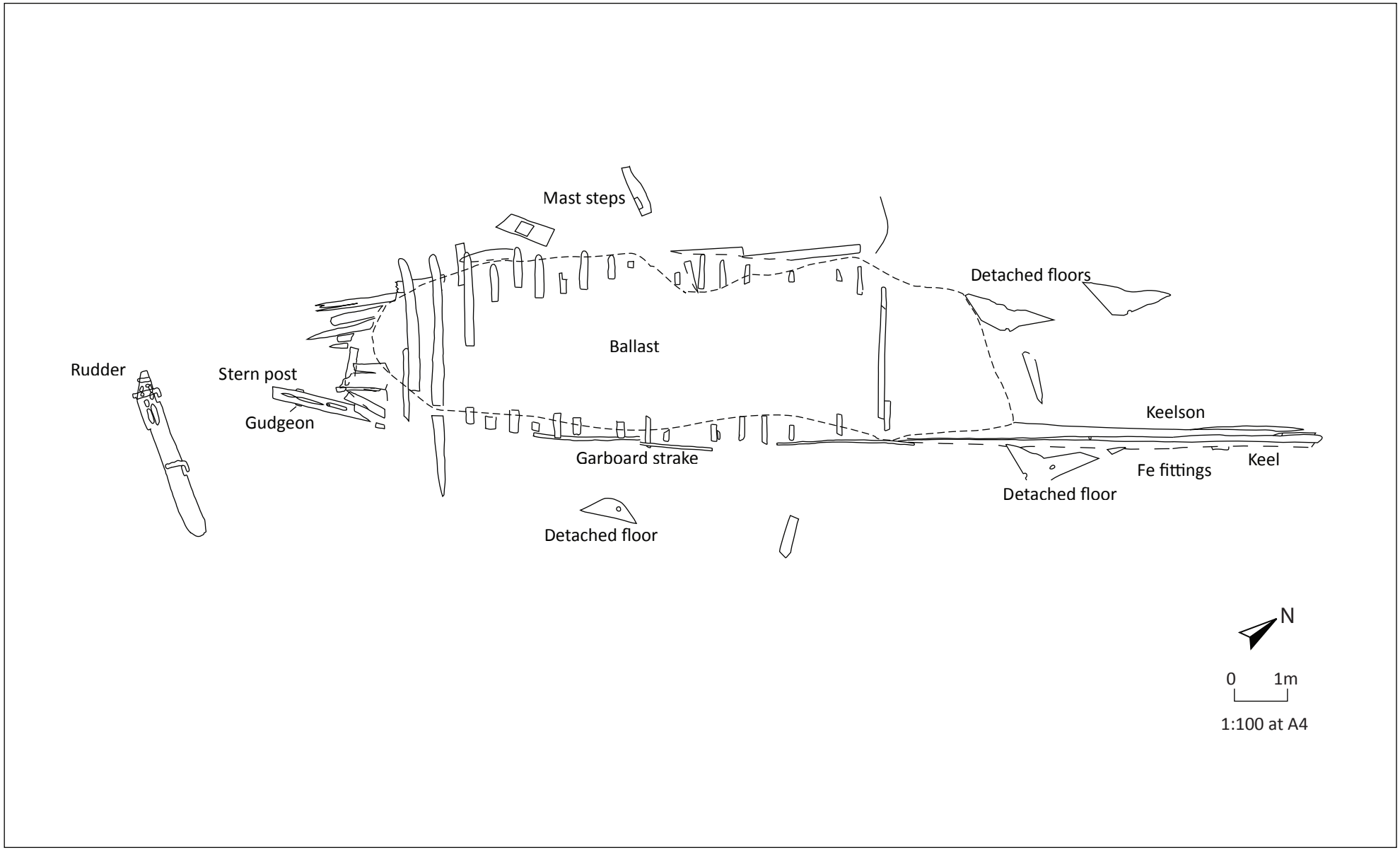

Figure 23: Wreck BB. Drawn by Tanya Wilson, Helen Jones & Richard Somers-Cocks, 11th July 2015.

Figure 24: Wreck BB, general view from stern end

Figure 25: Wreck BB, general view, showing stem end of keel

Figure 26: Wreck BB, general view along keel towards stern post

Figure 27: Wreck BB, planking, frames, floors and stern post

Figure 28: Wreck BB, detail of stern post with gudgeons

Figure 29: Wreck BB, detached rudder

Vessel ID BBB

Dimensions (m): Length: 17 Breadth: Height:

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		17	Stern post:	Yes		6.37
Keelson:	Yes			Rudder:	Yes		5.62
Planking:	Yes		variable	Iron bolts:	Yes	4+	
Stem post:	Yes			Gudgeons:	Yes		
Rams horns:	No			Pintles:	Yes		
Mast step:	Yes	1		Ballast:	Yes		
1st futtock:	Yes	15		Other visible elements:			
2nd futtock:	No			bow deadwood			
Floors:	Yes	2					
Boiler	Yes						

Frame spacing (centre to centre):

Fastenings:

Toolmarks:

Waterproofing: evidence of tar

Contents: 0.06 circular Cu disk, 2 pieces Cu tubing

Description:

A 1st Class Zulu, carvel-built, lying on its port side. Little survives of the starboard side of the hull, but the port side, where the hull has come to rest of the foreshore, has survived better. The keel (beech) and keelson appear to survive to their full length, the lower part of the stem and the stem deadwood survive. 15 frames survive to the first futtock (oak) on the port side, with a large area of planking (larch) beneath them. The stern post (oak) survives to 6.37m, though detached, and almost completely submerged at normal low tide. The detached rudder lies adjacent, also underwater at normal low tides. Two possible floors (oak) and a part of the mast step survive. A boiler lies immediately next to the bow of the wreck on the landward side, likely associated with this wreck.

Surveyor name: Michael Sharpe & Steve Worth

Date of survey: 12/07/2015

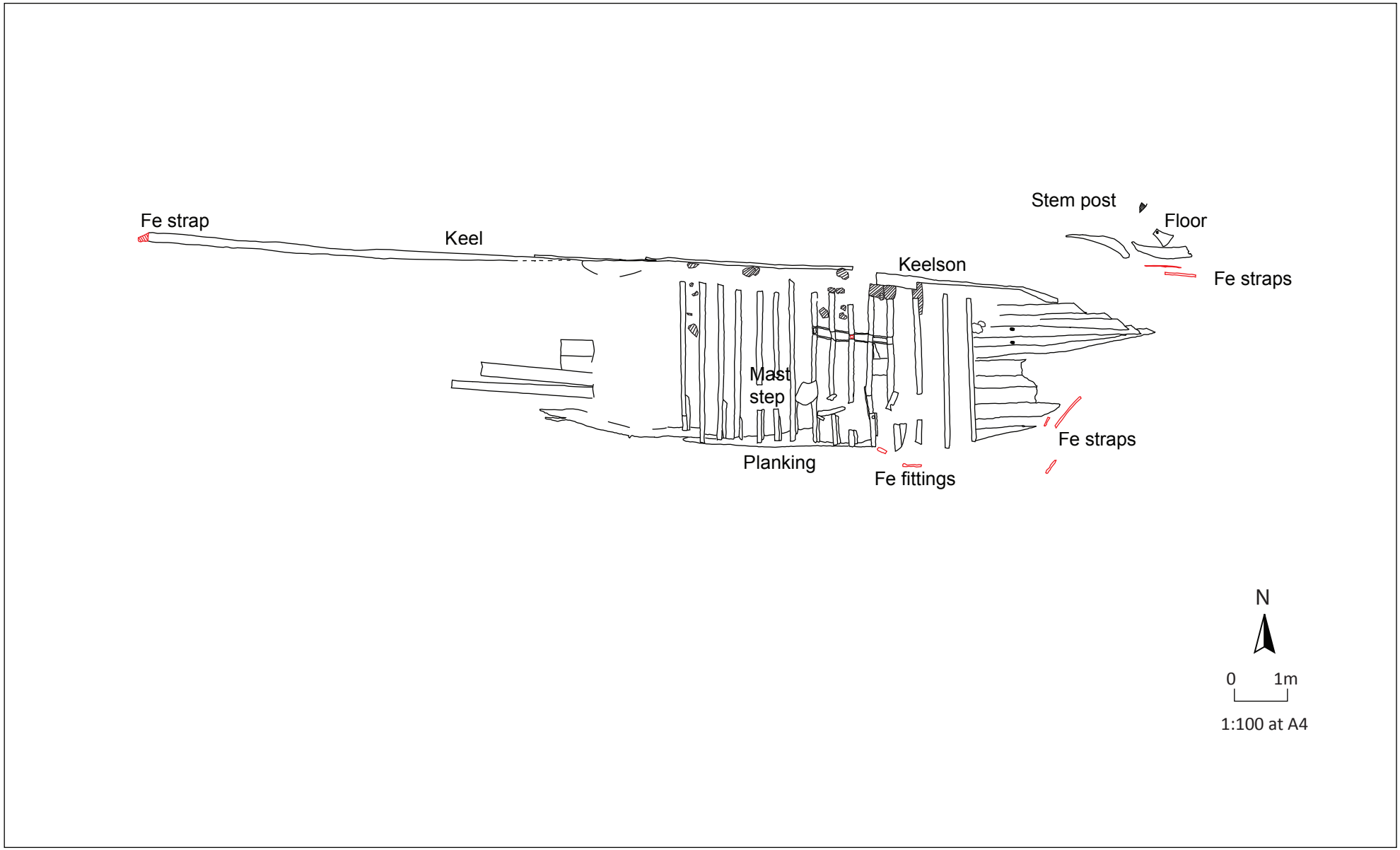

Figure 30: Wreck BBB. Drawn by Michael Sharpe & Steve Worth, 11th July 2015.

Figure 31: Wreck BBB, general view along keel and port frames

Figure 32: Wreck BBB, port frames and external planking

Figure 33: Wreck BBB, detached timber with Fe fittings

Figure 34: Wreck BBB, general view of port side

Vessel ID CC

Dimensions (m): Length: 15.6 Breadth: 10 Height:

Vessel type: Zulu Propulsion: Sail Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		15.6x0.16x0.27	Stern post:	Yes		stub
Keelson:	Yes		12.2x0.43x0.23	Rudder:	Yes		stub
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	Yes	1	
Rams horns:	No			Pintles:	Yes	1	
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No			port garboard strake		1	9.9x0.2x0.02
Floors:	No			s/b garboard strake		1	9.35x0.22x0.03
Boiler	No						

Frame spacing (centre to centre):

Fastenings: Toolmarks: yes

Waterproofing: Contents:

Description:

A 1st Class Zulu, little surviving other than keel (beech) and keelson, though some of the hull may survive under the spread areas of ballast. The garboard strake runs part of the length of the keel on the port and starboard sides. The very base of the stern post survives at the distinctive raking angle of the Zulu stern, with one gudgeon attached, with an attached fragment of the rudder hanging from a pintle.

Surveyor name: Jonie Guest

Date of survey: 12/07/2015

Figure 35: Wreck CC, view along keel

Figure 36: Wreck CC, stem end of keel

Figure 37: Wreck CC, detail of base of stern post

Vessel ID CCC

Dimensions (m): Length: 5 Breadth: 4.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small ballast mound, possibly associated with vessel BBB or marking the remains of a small fishing vessel.
Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 38: Wreck CCC, ballast mound

Vessel ID DDD

Dimensions (m): Length: 20 Breadth: 7.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A large ballast mound, likely marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sediment and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 39: Wreck DDD, ballast mound

Vessel ID FF

Dimensions (m): Length: 11 Breadth: 5.5 Height:

Vessel type: Unknown - ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A ballast mound, likely marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sediment and the ballast.
Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 40: Wreck FF, ballast mound

Vessel ID FFF

Dimensions (m): Length: 5.5 Breadth: 3 Height:

Vessel type: N/A – ballast only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small mound of stones possibly associated with the remains of other vessels in the Findhorn Bay boat graveyard. Based on its small size, this mound is less likely to represent the site of another vessel. Given its location adjacent to the pier by the boathouse, which is constructed as a wooden frame filled with ballast-sized stone cobbles (possibly reused from ballast mounds?) it has been suggested that this may be a dump of stones associated with its construction.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 41: Wreck FFF, ballast mound

Vessel ID GG

Dimensions (m): Length: 5.5 Breadth: 3.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 42: Wreck GG, ballast mound

Vessel ID GGG

Dimensions (m): Length: 16.6 Breadth: Height:

Vessel type: Zulu (s) Propulsion: Sail Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes			Stern post:	Yes		3.3
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	Yes	6	
Stem post:	No			Gudgeons:	Yes	3	
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No			stern deadwood		1	1.82
Floors:	No						
Boiler	Yes						

Frame spacing (centre to centre):

Fastenings: Iron Toolmarks: too eroded

Waterproofing: some pitch on Contents:

Description:

A cluster of loose timber elements which likely represent two different vessels.

The first vessel is a 1st Class Zulu, consisting of a keel (larch) at least 16.6m in length. The stern end of the keel is intact where the stern post would have been attached, showing the distinctive angle of a raking Zulu stern. A detached stern post (oak), 3.3m in length with 3 gudgeons lies nearby (c.6m distance) and may be associated with this keel. The very damaged remains of a boiler are likely also associated with the remains of this vessel.

A second vessel is indicated by a second detached stern post, 3.48m long and with 2 gudgeons which lies 12.585m from the main area of the wreck. A stern deadwood (1.82m long) may be associated with this stern post.

One posible futtock and loose strakes may be from either of these two vessels.

Surveyor name: Steve Liscoe

Date of survey: 11/07/2015

Figure 43: Wreck GGG, detached stern post

Figure 44: Wreck GGG, general view

Figure 45: Wreck GGG, remains of boiler

Vessel ID HH

Dimensions (m): Length: 6.5 Breadth: 2 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 46: Wreck HH, ballast mound

Vessel ID II

Dimensions (m): Length: 11 Breadth: 6 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe

Date of survey: 27/02/2015

Figure 47: Wreck II, ballast mound

Vessel ID III

Dimensions (m): Length: 12.14 Breadth: Height:

Vessel type: N/A – single timber Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	No			Other visible elements:			
2nd futtock:	No			top rail			
Floors:	No						
Boiler	No						

Frame spacing (centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A long curving timber (oak) with metal deadeyes, probably a top rail associated with vessel JJJ, detached from the main area of remains.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 48: Wreck III, detached top rail, probably from wreck JJJ

Vessel ID JJ

Dimensions (m): Length: 18.7 Breadth: 5.8 Height:

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	Yes		
Keelson:	No			Rudder:	No		
Planking:	Yes			Iron bolts:	Yes		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	Yes	26		Other visible elements:			
2nd futtock:	No			Fire box		1	
Floors:	No			Eye bolts		1	
Boiler	Yes			Steel strap		1	4.2 x 0.1

Frame spacing (centre to centre): 0.33

Fastenings: Iron Toolmarks:

Waterproofing: Contents:

Description:

Remains of a 1st Class Zulu fishing boat, more intact than most of the others in the Findhorn Bay boat graveyard, presumably due to its location in the middle of the channel and inaccessible except by boat. Most of the hull likely survives buried in the sediment, the visible upper part appears to survive almost to the gunwales, as part of the top rail survives. Stern post, frame 1 and starboard top rail identified as oak, frames 2 and 3 and crossbeam near bow identified as larch.

Surveyor name: Michael Sharpe

Date of survey: 30/08/2015

Figure 49: Wrecks JJ (top) & KK (bottom). From photomosaic created by Eddie Martin

Figure 50: Wrecks JJ & KK, general view across both vessels

Figure 51: Wreck JJ, general view of interior with tops of frames

Figure 52: Wreck JJ, boiler and firebox

Figure 53: Wreck JJ, detail of deadeye on toprail

Vessel ID JJJ

Dimensions (m): Length: 23 Breadth: Height:

Vessel type: Zulu Propulsion: Sail Construction: Clinker

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	Yes		
Keelson:	No			Rudder:	No		
Planking:	Yes			Iron bolts:	No		
Stem post:	Yes			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	Yes	1		Ballast:	No		
1st futtock:	Yes			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	Yes						

Frame spacing (centre to centre):
Fastenings: Iron Toolmarks:
Waterproofing: Contents:

Description:
A 1st Class, clinker-built Zulu. The elements are quite scattered, but include the upstanding remains of the stem and stern posts (oak) and the ends of 11 starboard frames (3 identified as oak) protruding from the sand towards the stern. A surviving piece of overlapping planking (larch) and several frames with joggles (saw-tooth profile) demonstrate the clinker construction of the vessel. At the forward end are five bow frames (3 identified as oak), one rebated bow frame. A long curved notched timber may be part of a gunwhale. The mizzen mast step (oak) and boiler sit in almost their original positions in the wreck. To the north of the wreck a long curving timber (III) with metal deadeyes probably represents the detached top rail of this vessel.

Surveyor name: Sue Finnegan
Date of survey: 12/07/2015

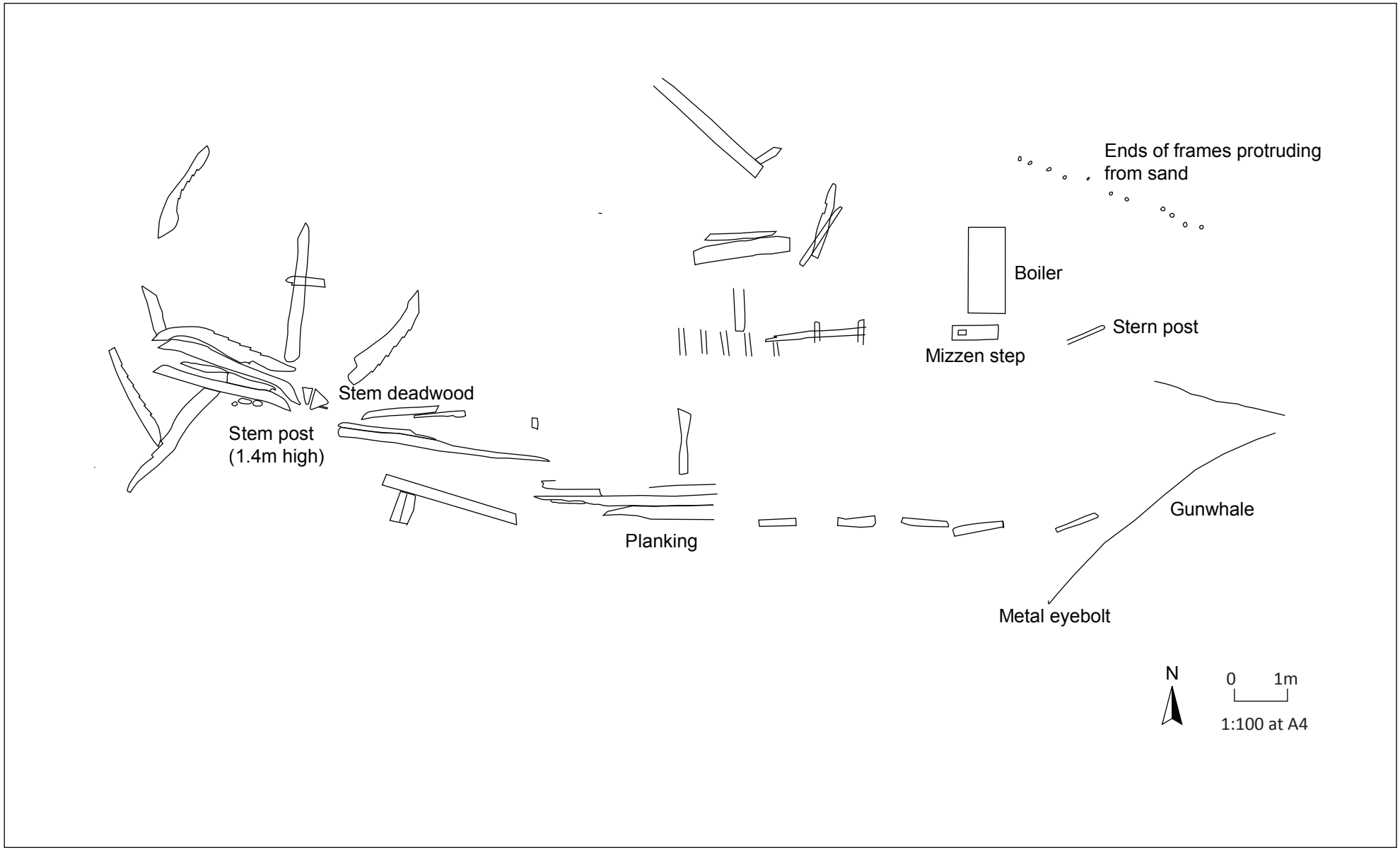

Figure 54: Wreck JJJ. Drawn by Timothy & Sue Finnegan, Tim Negus & Richard Somers-Cocks, 11th July 2015.

Figure 55: Wreck JJJ, general view showing upstanding stem post

Figure 56: Wreck JJJ, general view from stern towards stem

Figure 57: Wreck JJJ, detail of frame showing joggles, evidence of clinker build

Figure 58: Wreck JJJ, boiler

Vessel ID KK

Dimensions (m): Length: 20.8 Breadth: 4.8 Height: 1.2

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	Yes		
Keelson:	No			Rudder:	No		
Planking:	Yes			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	Yes	46		Other visible elements:			
2nd futtock:	No						
Floors:	Yes						
Boiler	Yes						

Frame spacing (centre to centre): 0.37

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:
Remains of a 1st Class Zulu fishing boat, more intact than most of the others in the Findhorn Bay boat graveyard, presumably due to its location in the middle of the channel and inaccessible except by boat. Most of the hull likely survives buried in the sediment, the visible upper part appears to survive almost to the gunwales, as part of the top rail survives. Of the visible frame timbers, 4 identified as oak, 4 as larch.

Surveyor name: Steve Worth

Date of survey: 30/08/2015

Figure 59: Wreck KK, general view from stem end

Figure 60: Wreck KK, frames

Vessel ID LL

Dimensions (m): Length: 7 Breadth: 5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 61: Wreck LL, ballast mound. JJ and KK in background

Vessel ID MM

Dimensions (m): Length: 7.5 Breadth: 3.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 62: Wreck MM, ballast mound

Vessel ID MMM

Dimensions (m): Length: 2 Breadth: 2.7 Height:

Vessel type: N/A – ballast only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small mound of stones possibly associated with the remains of other vessels in the Findhorn Bay boat graveyard. Based on its small size, this mound is less likely to represent the site of another vessel.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Vessel ID NN

Dimensions (m): Length: 6.5 Breadth: 5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 63: Wreck NN, ballast mound

Vessel ID NNN

Dimensions (m): Length: 3.3 Breadth: 2.7 Height:

Vessel type: N/A – ballast only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:

A small mound of stones possibly associated with the remains of other vessels in the Findhorn Bay boat graveyard. Based on its small size, this mound is less likely to represent the site of another vessel.

Surveyor name: Ellie Graham & Michael Sharpe

Date of survey: 27/02/2015

Vessel ID OO

Dimensions (m): Length: 1.5 Breadth: 0.8 Height: 0.8m

Vessel type: N/A – boiler only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	Yes						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Single boiler, likely originally associated with nearby vessel PP.
Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Vessel ID OOO

Dimensions (m): Length: 1.8 Breadth: 1.8 Height:

Vessel type: N/A – ballast only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small mound of stones possibly associated with the remains of other vessels in the Findhorn Bay boat graveyard. Based on its small size, this mound is less likely to represent the site of another vessel.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Vessel ID PP

Dimensions (m): Length: 17.6 Breadth: 9 Height:

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		17.6x0.12x0.3	Stern post:	Yes		2.4x0.3x0.13
Keelson:	Yes			Rudder:	No		
Planking:	Yes	1	5x0.03x0.18	Iron bolts:	No		
Stem post:	No			Gudgeons:	Yes	2	
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No			shoe		1	5 (visible)
Floors:	No			garboard strakes		2	12x0.22x0.03
Boiler	Yes (OO)		1.6x0.9	deadwood		1	0.97x0.26x0.08

Frame spacing (centre to centre):

Fastenings: Iron Toolmarks: rebate and mortice

Waterproofing: tar Contents: ballast

Description:

A 1st Class Zulu, with little surviving other than the keel (beech), keelson and garboard strakes on both port and starboard sides; and a large, butterfly-shaped ballast mound, presumably deposited on the keel and immediately adjacent as the hull broke apart. The keel appears to survive to its full length, intact at both the bow and stern ends. The stern end of the keel where the stern post was attached retains the Zulu's distinctive steep angle. Part of the detached stern post (oak) with 2 gudgeons lies adjacent, along with the stern deadwood (oak).

Surveyor name: A Gillespie

Date of survey: 12/07/2015

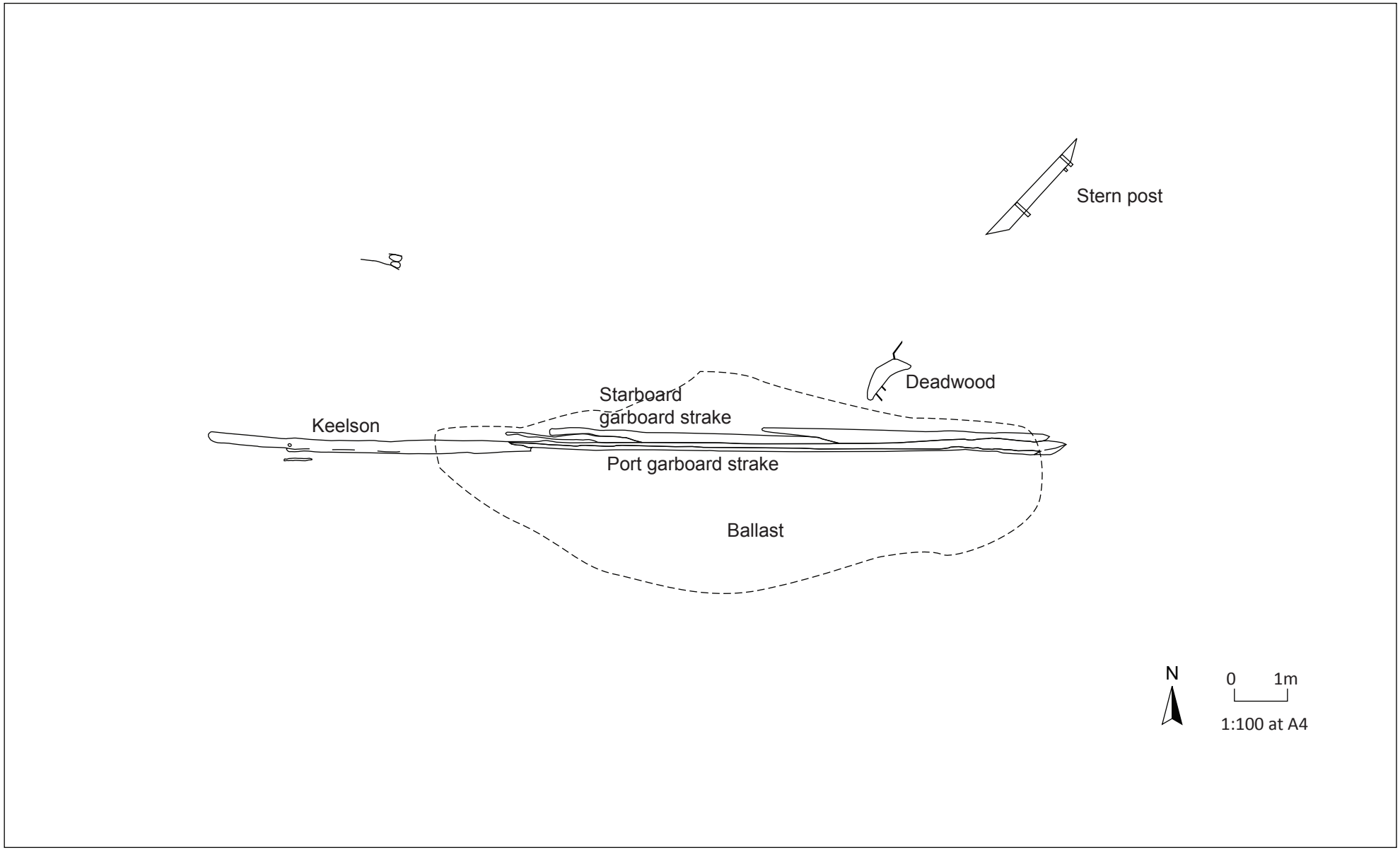

Figure 64: Wreck PP. Drawn by Hamish Grigor, Andrew Gillespie, James Dunbar-Nasmith, Jonie & Richard Guest, 11th July 2015.

Figure 65: Wreck PP, general view along keel showing garboard strakes on both sides

Figure 66: Wreck PP, general view of keel and ballast

Figure 67: Wreck PP, detail of stern end of keel

Figure 68: Wreck PP, detached stern post

Figure 69: Wreck PP, stern deadwood

Figure 70: Boiler (OO) adjacent to and probably from Wreck PP

Vessel ID PPP

Dimensions (m): Length: 2 Breadth: 2.2 Height:

Vessel type: N/A – ballast only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small mound of stones possibly associated with the remains of other vessels in the Findhorn Bay boat graveyard. Based on its small size, this mound is less likely to represent the site of another vessel.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Vessel ID QQ

Dimensions (m): Length: 5 Breadth: 4 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Vessel ID QQQ

Dimensions (m): Length: c.18 Breadth: c.6 Height:

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	Yes			Iron bolts:	No		
Stem post:	Yes			Gudgeons:	No		
Rams horns:	Yes			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	Yes			Other visible elements:			
2nd futtock:	Yes			Capstan			
Floors:	No						
Boiler	Yes						

Frame spacing
(centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:

Remains of a 1st Class Zulu fishing boat, located on an offshore sandbank, in the middle of the channel and inaccessible except by boat. Most of the hull likely survives buried in the sediment and underwater.

Surveyor name: Michael Sharpe

Date of survey: 30/08/2015

Figure 71: Wreck QQQ. From photomosaic created by Eddie Martin

Figure 72: Wreck QQQ, general view

Figure 73: Wreck QQQ, detail of stem post and rams horns

Figure 74: Wreck QQQ, boiler and capstan

Figure 75: Wreck QQQ detail of capstan

Vessel ID RR

Dimensions (m): Length: 3.25 Breadth: Height:

Vessel type: N/A – single timber Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	Yes			Gudgeons:	No		
Rams horns:	Yes			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:

Detached stem post, with rams horns, adjacent to (and probably associated with) the remains of vessel SS (recorded as part of SS).

Surveyor name: Ellie Graham & Joanna Hambly

Date of survey: 12/07/2015

Figure 76: Timber RR, stem post

Figure 77: Timber RR, detail of rams horns

Vessel ID SS

Dimensions (m): Length: 14 Breadth: 7.1 Height: 0.7

Vessel type: Zulu Propulsion: Sail Construction: Carvel

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		3.1	Stern post:	No		
Keelson:	Yes		2.2	Rudder:	No		
Planking:	Yes	10		Iron bolts:	No		
Stem post:	Yes	3.25	3.25	Gudgeons:	No		
Rams horns:	Yes			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	Yes	8		Other visible elements:			
2nd futtock:	Yes	1					
Floors:	Yes	8	0.97x0.39x0.39				
Boiler	Yes						

Frame spacing (centre to centre):

Fastenings:

Waterproofing:

Toolmarks:

Contents: lamp lens fragment, tile

Description:

The remains of a fishing boat, original dimensions are unknown as much of the keel is obscured by ballast and a significant part of the hull lies underwater, even at extremely low tides. The remains of the vessel lie on its starboard side, 8 first futtocks (3 identified as larch) lie on the foreshore on the starboard side, with patches of carvel planking visible underneath, largely buried under ballast. Two detached futtocks nearby are probably associated with this boat. Aerial photos seem to show at least two first futtocks on the port side, lying underwater at low tide. Eight floors sit in situ on the keel visible at low tide, more are probably underwater.

The stern end of the boat and the boiler lie submerged and it is likely submerged elements include further surviving planking, frames and floors. Further elements also likely survive buried beneath the scattered ballast.

Surveyor name: Paul McCallum

Date of survey: 12/07/2015

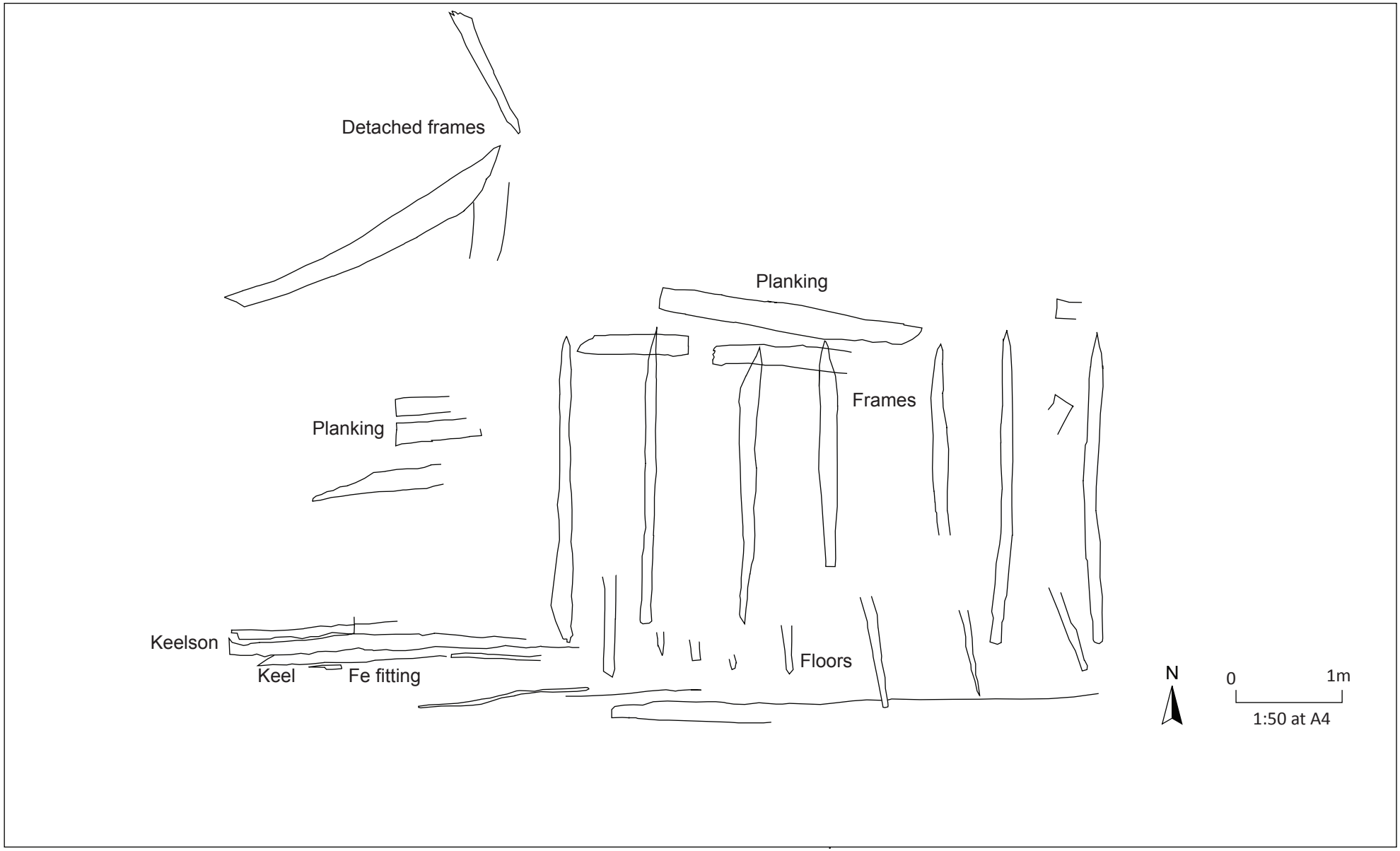

Figure 78: Wreck SS. Drawn by Paul McCallum, Mike Lamont, Christine Preece & Shona Christie, 11th July 2015.

Figure 79: Wreck SS, general view showing keel and floors

Figure 80: Wreck SS, frames and floors with limber holes

Figure 81: Wreck SS, frames

Figure 82: Wreck SS, detached stem post

Vessel ID TT

Dimensions (m): Length: 7 Breadth: 8.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Butterfly-shaped ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard) and formed when the wooden hull fell apart causing the stones of the ballast to settle either side of the keel. Further remains may be buried beneath the sand and the ballast.
Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 83: Wreck TT, ballast mound

Vessel ID UU

Dimensions (m): Length: 9 Breadth: 8.5 Height:

Vessel type: Wooden fishing boat Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		9.5	Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Remains of a (?) 1st Class fishing vessel, visible as a large ballast mound overlying the wooden keel (beech) with a small adjacent ballast mound, formed when the wooden hull fell apart. Further remains possibly survive buried beneath the sediment and ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 84: Wreck UU, ballast mound overlying wooden keel

Vessel ID VV

Dimensions (m): Length: 6.5 Breadth: 4.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
Small ballast mound, possibly marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sand and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 85: Wreck VV, ballast mound

Vessel ID WW

Dimensions (m): Length: 14.5 Breadth: 8.5 Height:

Vessel type: Zulu Propulsion: Sail Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	Yes		14.3	Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	No		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing (centre to centre):

Fastenings: Toolmarks:

Waterproofing: Contents:

Description:

A 1st Class Zulu fishing boat. The only visible surviving remains are the keel/keelson (beech) 14.3m long and the large, butterfly-shaped ballast mound, presumably deposited on either side of the keel as the hull broke apart. The stem end of the keel appears intact, with a straight face where the stem post would have originally been attached.

Surveyor name: Joanna Hambly

Date of survey: 12/07/2015

Figure 86: Wreck WW, keel and ballast mound

Vessel ID XX

Dimensions (m): Length: 8 Breadth: 8 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A butterfly-shaped ballast mound, marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard) formed when the wooden hull fell apart causing the stones to settle either side of the keel. Further remains may be buried beneath the sediment and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 87: Wreck XX, ballast mound

Vessel ID YY

Dimensions (m): Length: 6.5 Breadth: 4.5 Height:

Vessel type: Unknown – ballast mound only Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small ballast mound, marking the remains of a (?) fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard). Further remains may be buried beneath the sediment and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 88: Wreck YY, ballast mound

Vessel ID ZZ

Dimensions (m): Length: 4.5 Breadth: 6 Height:

Vessel type: Unknown – ballast mound Propulsion: Construction:

Visible elements:

	Present:	no.:	Dimensions:		Present:	no.:	Dimensions:
Keel:	No			Stern post:	No		
Keelson:	No			Rudder:	No		
Planking:	No			Iron bolts:	No		
Stem post:	No			Gudgeons:	No		
Rams horns:	No			Pintles:	No		
Mast step:	No			Ballast:	Yes		
1st futtock:	No			Other visible elements:			
2nd futtock:	No						
Floors:	No						
Boiler	No						

Frame spacing
(centre to centre):
Fastenings: Toolmarks:
Waterproofing: Contents:

Description:
A small butterfly-shaped ballast mound, marking the remains of a fishing vessel (on the basis of association with other remains in the Findhorn Bay boat graveyard) formed when the wooden hull fell apart causing the stones to settle either side of the keel. A single detached timber which may be associated lies on the seaward side of the ballast mound, and further remains may be buried beneath the sediment and the ballast.

Surveyor name: Ellie Graham & Michael Sharpe
Date of survey: 27/02/2015

Figure 89: Wreck ZZ, ballast mound