

Project Adair

Mapping Marine Heritage Sites to Support New Marine Legislation

Report for May 2012 – March 2013





Royal
Commission on the
Ancient and
Historical
Monuments of
Scotland



RCAHMS

John Sinclair House
16 Bernard Terrace
Edinburgh EH8 9NX

0131 662 1456

info@rcahms.gov.uk
www.rcahms.gov.uk

Registered charity SC026749

Published in 2013 by the
Royal Commission on the Ancient
and Historical Monuments of Scotland

All images Crown Copyright © RCAHMS 2013

Historic Scotland

Longmore House
Salisbury Place
Edinburgh EH9 1SH

0131 668 8600

hs.schedulingteam@scotland.gsi.gov.uk
www.historic-scotland.gov.uk

Cover image: A diving archaeologist conducting a metal-detector survey in 1974 over the site of the Dutch East Indiaman *Adelaar*, wrecked on the coast of Barra, Western Isles, in 1728. SC1312976 Colin Martin Collection

Back cover: A bronze cannon being raised from the site of the Spanish warship *El Gran Grifon*, wrecked on the coast of Foula, Shetland, in 1588. DP151108 Colin Martin Collection

Contents

Introduction	1
The Current Character of the Resource	2
Summary of Results	3
Project Objectives and Results	4
Objective 1	4
UKHO Data	4
Whittaker	4
Data Sharing	5
Wreckmap	6
Objective 2	7
Orkney Waters and the Pentland Firth	7
Scapa Flow	9
Objective 3	9
Drs Colin and Paula Martin Archive	11
OHCCMAPP	12
Coastal Zone Assessment Survey	12
Objective 4	12
Objective 4.1	12
Objective 4.2	15
Objective 4.3	16
Conclusions	19
Acknowledgements	20
References and Abbreviations	21
Appendix 1: Technical Methodology	23
UKHO	23
Whittaker	27
ORCA	28
Appendix 2: Statement of Requirements	29



A bronze swivel-gun with the Dutch East India company cipher, recovered from the 1728 wreck *Adelaar*. SC1313146
Colin Martin Collection

Introduction

Project Adair was initiated in July 2011 as a partnership between Historic Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS). Named after John Adair, the author of the *Description of the Coast and Seas of Scotland* published in 1703, the project sought to improve the record of the marine historic environment in a cost effective way and to ensure information is efficiently and effectively disseminated, thereby underpinning Scottish Ministers' policies for encouraging sustainable economic growth in the coasts and seas around Scotland through implementation of the Marine (Scotland) Act and UK Marine and Coastal Access Act 2009.

Details on the technical methodology are outlined at the back of this report (Appendix 1). A Statement of Requirements for Project Adair 2012–13 (Appendix 2) summarises the current policy and legislative context, and sets out priority actions that take on board the conclusions of three previous documents:

- [*Towards a Strategy for the Marine Historic Environment* \(Historic Scotland and BEFS 2009\)](#)
- [*Scotland's Marine Data Heritage Audit* \(Wessex Archaeology 2011\)](#)
- [*ScARF Marine and Maritime Panel Report* \(2012\)](#)

This report sets out the results of the second and final year of the project.

The Current Character of the Maritime Dataset

This table outlines the main changes in the Canmore maritime records after Project Adair. Each of the categories has been chosen to reflect particular changes in the quantity, quality and character of the record.

	Canmore Maritime Records Before Project Adair	Canmore Records After Project Adair (1st April 2013)	Percentage change
Total number of maritime records defined by 'site number >7,999'	23,864	32,983	+38%
Maritime records where 'form=wreck'	1,678	4,660	+178%
Maritime records where 'form = casualty'	18,447	23,587	+28%
Maritime records where 'class = obstruction'	320	2,322	+625%
Maritime records where 'class = aircraft'	810	1,255	+55%
Unlocated records ie maritime records without an entered position	7,982	3,593	-55%

Summary of Results

- 5,200 records from the UKHO Wrecks database entered into Canmore
- 18,500 records from Ian Whittaker's *Off Scotland* database entered into Canmore
- 600 records from the HS funded desk-based assessment of Orkney Waters and the Pentland Firth entered into Canmore
- Data from the recent HS funded Scapa Flow Survey by WA Coastal and Marine entered into Canmore
- 1,200 digital images from the Colin and Paula Martin collection accessioned and made publicly accessible through Canmore.
- Fieldwork undertaken on coastal settlements at Caolas Stulaigh and Hairteabhaigh in South Uist
- All maritime archiving of reports and digital datasets is now up to date
- RCAHMS Maritime data published through the National Marine Plan Interactive
- RCAHMS working towards Medin accreditation as a Data Archiving Centre
- Project Adair 'Wreck Map' published

Project Objectives and Results

Objective 1

To complete integration of the Whittaker database and updated UK Hydrographic Office download of wrecks data received in 2011–12, within the RCAHMS national inventory for the Scottish territorial waters and offshore waters (ie 0–200 nautical miles around Scotland) and make this information widely available to support new marine planning systems.

The need to reconcile heritage information with the continually updated database of wrecks and other obstructions held by the UKHO has been highlighted previously (Historic Scotland and BEFS 2009, 10; WA Coastal and Marine 2011, 47). Addressing this need from 0–200 nautical miles around Scotland is considered the central aspect of Project Adair as it will ensure that there is a basic current record in place to cover the full geographic area within which Scottish Minister's devolved powers extend for planning and licensing (powers to designate Historic Marine Protected Areas extend to 12 miles only).

UKHO Data

The United Kingdom Hydrographic Office (UKHO) wrecks database is the most significant dataset of wrecks in UK and International waters. Developed principally with navigation in mind, it includes over 5,000 entries for Scottish waters.

After changes in legislation, and the resultant alteration of the RCAHMS Royal Warrant to include offshore environments in 1992, the foundation stones for a Scottish historic environment record were laid in March 1995 with the integration of a download of this dataset into what was then the National Monuments Record of Scotland database, amounting to about 1,500 records.

As part of Project Adair, an updated and more complete version of the UKHO dataset including over 5,200 records was integrated with Canmore in March 2013. The details of the methodology used can be found in Appendix 2.

Whittaker

Whittaker's *Off Scotland* is the single most important reference of maritime losses (shipping and aircraft) in Scottish waters. Because of its significance, the process of manually referencing recording the book, linking it to Canmore records and entering the relevant details, was begun in 2007. This methodology was also applied to other key texts, such as Larn and Larn's *Shipwreck Index of the British Isles*, and Ridley's

Dive Guides, and was closely related to that used by the Ordnance Survey Archaeology Division's Office Recorders. The process included a manual concordance and a peer review of the combined dataset.

With the retirement of RJC Mowat from RCAHMS in 2012, and the timely accession of the revised digital database of losses that lies behind Whittaker's *Off Scotland*, it was decided that a) the remainder of the Whittaker dataset should be input through a programmed process (with manual checking and peer review), and b) that the *entire* digital database (including all the original fields, unaltered) should be entered into Canmore. As part of Project Adair the entire Whittaker database of over 18,000 records was integrated with Canmore in March 2013. The details of the methodology used can be found in Appendix 2.

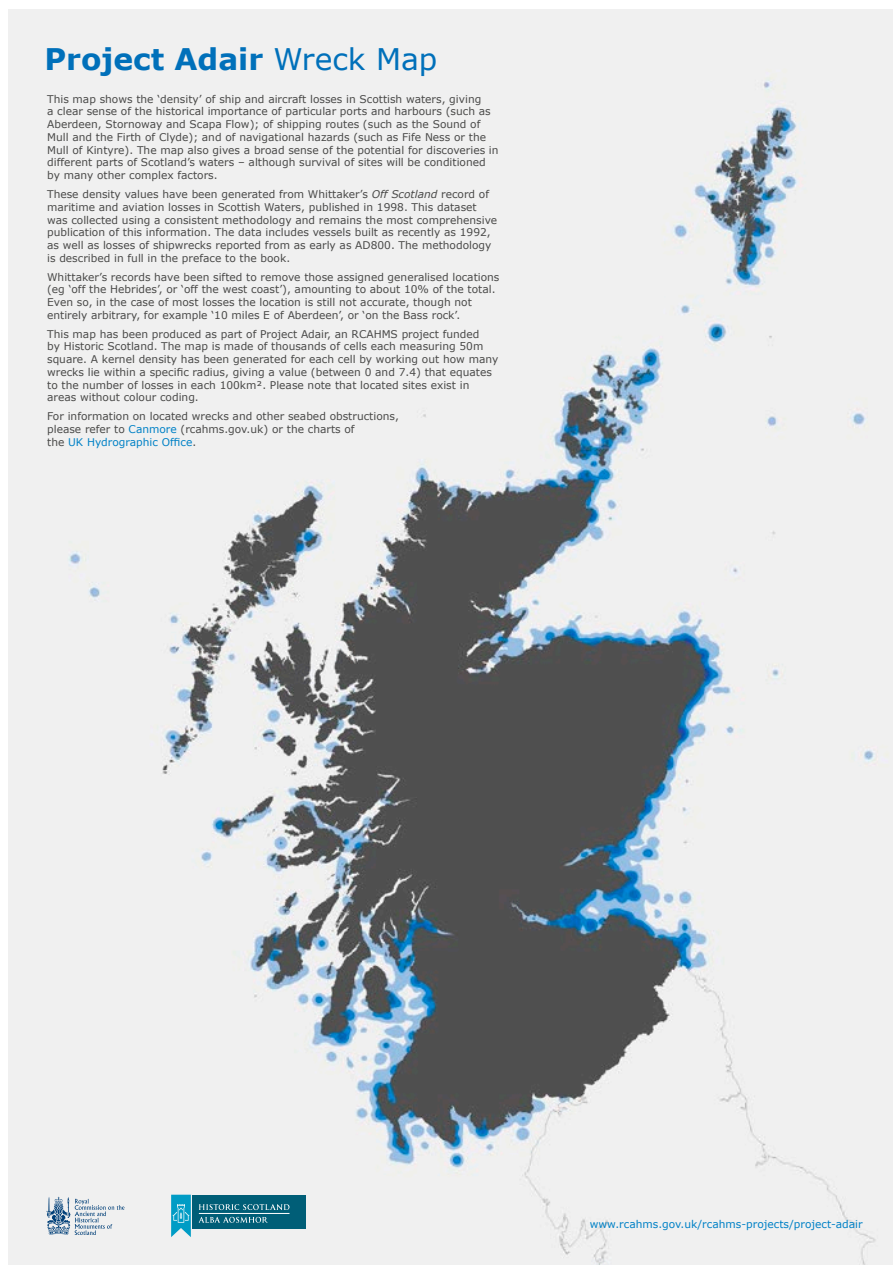
Data Sharing

Canmore data is available to view and interrogate through the Canmore and related websites (such as Pastmap), which allow detailed database and spatial searching. Canmore maritime data, including wrecks, losses and all records within 150m of the high water mark, is available through Scottish Government's [National Marine Planning Interactive](#).

Extracts of the dataset including downloads and GIS shape files can be ordered through <http://www.rcahms.gov.uk/buy-images-and-data.html>

Wreckmap

The concept of exploring the potential for shipwreck archaeology in Scottish waters through density mapping of historic losses to shipping was explored in the first project report. A ‘Wreck Map’ generated from Whittaker’s record of losses in Scottish Waters was published online in March 2013 (RCAHMS 2013). The map, designed to be viewed onscreen or printed out at A3, gives an indication of the high density of shipwrecks around Scotland’s coast, and the particular potential of historically important areas of shipping and dangerous routes. The map itself includes a detailed description of the methodology used.



Objective 2

To integrate within the RCAHMS National Inventory, data and information gathered in 2011 – 12 as part of Project Adair by Orkney Research Centre for Archaeology (ORCA), and by Wessex Archaeology (site surveys in Scapa Flow) in order to enhance the record for the Orkney Waters and Pentland Firth and to make this information widely available to support new marine planning systems;

- *Integration into Canmore of information from database provided by ORCA to RCAHMS*
- *integration into Canmore of site information from Wessex Archaeology report into the survey of high priority sites in Scapa Flow*

Orkney Waters and the Pentland Firth

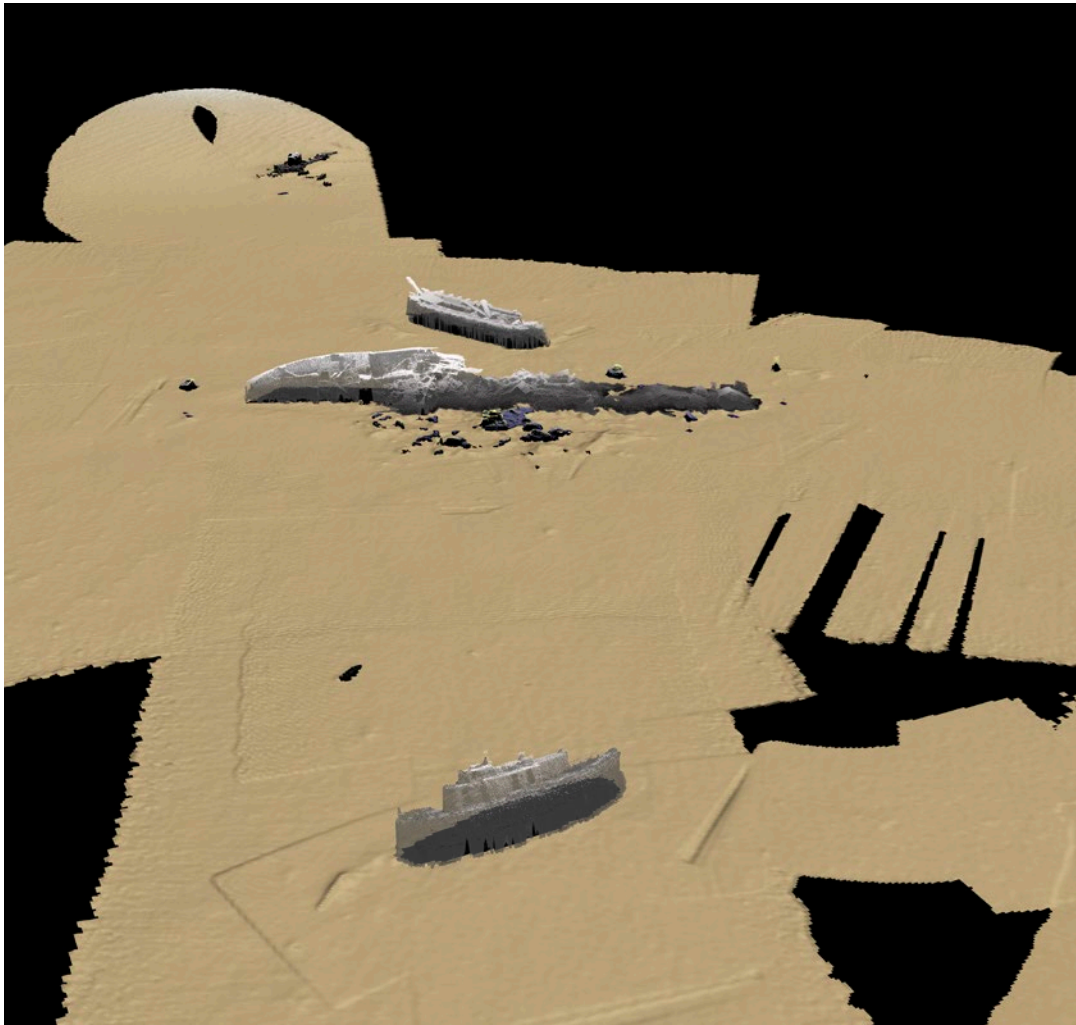
A pilot desk-based project was undertaken to revise and enhance the historic environment record for Orkney waters and the Pentland Firth. Undertaken by the Orkney Research Centre for Archaeology, the project board included representatives from Orkney and Highland Council.

The project resulted in the creation of 577 notes describing 462 new sites and 115 existing sites, each of which was designed with relevant fields so that it could be directly imported to Canmore. The results were provided as a text report, two databases, and two shapefiles. The details of the methodology used can be found in [Appendix 1](#), and in the project report available [online](#).

The project was particularly valuable in the compilation and archaeological analysis of recent survey data, which produced an amended dataset rich in geophysical anomalies which may be of archaeological significance. The project plan, which included a detailed project design allowing the results to be easily entered into Canmore with site-area polygons was also a very positive and unusual aspect.

The original dataset supplied to ORCA included 9986 located records for the project area (of which 1,620 were maritime). Information on 1,286 unlocated records (ie those assigned a map sheet but not a grid reference) was also supplied.

The 462 new records presented a significant increase in the overall maritime dataset but over 344 of these were classified as ‘Unidentified



Extract from the survey data for four wrecks in Mill Bay, Orkney: from front to back, *MV Mara*, *KMS F2*, *YC21*, *HMS Dewey Eve*. Extracted by RCAHMS from © Historic Scotland data.

Object’, and it is difficult to verify the value of the increase, and the character and origin of these objects, without field checking (ie more detailed archaeological survey of some form). Characterisation of areas as anchorages and fishing grounds in specific periods was also of great use, and it raises a number of questions about how these areas are recorded going forward. Finally, the project benefited greatly from local contact with divers who were able to clarify the specific character if otherwise unknown obstructions.

The large area approach to maritime record upgrade has also been tested and, although it was possible to study available survey data, it was not possible to undertake a complete ‘record revision’ of the dataset of c2800 maritime records (unlocated and located) in the available timescale. Record revision on that scale is something that takes many years and has, in the past, been undertaken by organisations such as the UKHO and the OS Archaeology Division.

Scapa Flow

WA Coastal and Marine were commissioned by Historic Scotland to provide high-resolution multibeam survey data targeted on a number of known wreck sites in Scapa Flow. A total of eighteen wrecks were surveyed and assessed, including 16 that were previously known.

The text report was accessioned into the collection in 2012 and made available as a pdf linked to individual Canmore records. The digital archive, 157 files amounting to 2 GB of data, is held on secure servers at RCAHMS and is to be accessioned and catalogued in partnership with WA Coastal and Marine once metadata has been created.

Extract from the survey data for four wrecks in Mill Bay, Orkney: from front to back, *MV Mara*, *KMS F2*, *YC21*, *HMS Dewey Eve*. Extracted by RCAHMS from ©Historic Scotland data.

Objective 3

To work collaboratively with third parties supported by Historic Scotland to carry out further priority data gathering/archiving work. The objective for RCAHMS is to ensure that this information is archived within the RCAHMS National Inventory and made widely available to support new marine planning systems.

- *Any data requested from RCAHMS by the third parties will be provided free of charge*
- *RCAHMS will participate in project steering groups (by video conference where appropriate)*
- *RCAHMS will coordinate with third parties to ensure that data/collection material generated is developed and delivered in a manner that allows for assimilation within the national inventory/collection through RCAHMS data structure deposition mechanisms*
- *RCAHMS will undertake a 10-day field trip with Wessex Archaeology as part of the Outer Hebrides Coastal Community Marine Archaeology Pilot Project (OHCCMAPP)*



Colin Martin prepares for his first exploratory dive in Stroms Hellier on 11 May 1970. The wreck of the 650 ton 38-gun Armada ship *El Gran Grifón* was discovered on the 9th June. Colin Martin Collection. DP151104

Drs Colin and Paula Martin Archive

Historic Scotland commissioned Morvern Maritime Centre to carry out a project under the auspices of Project Adair entitled ‘Digitising and archiving the Colin Martin Collection of maritime material in the National Monuments Record of Scotland’.

The project involved a close partnership between Colin and Paula Martin, and RCAHMS, which facilitated the creation of a long-term copyright agreement, the development of a detailed methodology for ‘self-digitisation’ and the integration of c1200 high resolution digital images of line drawings, and transparency and print photographs. The collection includes a large amount of unpublished primary material that captures a number of the most important shipwreck excavations of the 20th century (Martin 1998 provides a summary of these major excavations).

Site	Numlink	Material	Size	Accessioned & Catalogued
<i>Adelaar</i>	213275	156 digital images (colour and black and white images, line drawings)	7.25 GB	Yes
<i>Dartmouth</i>	102424	683 items including photographs and drawings	34.3 GB	Yes
<i>Siccar Point</i>	151710	2 line drawings		Yes
75–95 Perth High Street [medieval]	28257, 160087, 160592	28 items including drawings and photographs	1.01 GB	Yes
<i>Duart Point</i>	80637	20 line drawings		Yes
Boathouses	Various	130 items including line drawings and photographs	8.07 GB	Yes
<i>El Gran Grifon</i>	3857	141 items including black and white images, colour images, and line drawings	6.35 GB	Yes

OHCCMAPP

A ten-day fieldtrip was undertaken with colleagues from WA Coastal and Marine. This included field survey (undertaken by RCAHMS), as well as paleogeographical sampling and diver survey (undertaken by WA). The two areas visited by RCAHMS were both on the remote east coast of South Uist, at Hairteabagh and Caolas Stulaigh. The results of RCAHMS fieldwork are presented below (Objective 4.3) and summarised in the project report by WA Coastal and Marine (2013 forthcoming).

Coastal Zone Assessment Survey

Building on last year, further efforts were made to enhance Coastal Zone Assessment Survey (CZAS) data in Canmore, focussing this time on the Western Isles, and in particular Barra and Vatersay. This supports the priority work of Project Adair on Orkney's maritime inventory, the areas subject to study in 2012.

Objective 4

To upgrade records for existing designated underwater sites and other key coastal and marine sites, including digitisation of archaeological reports and other material and to make this information widely available to support new marine planning systems

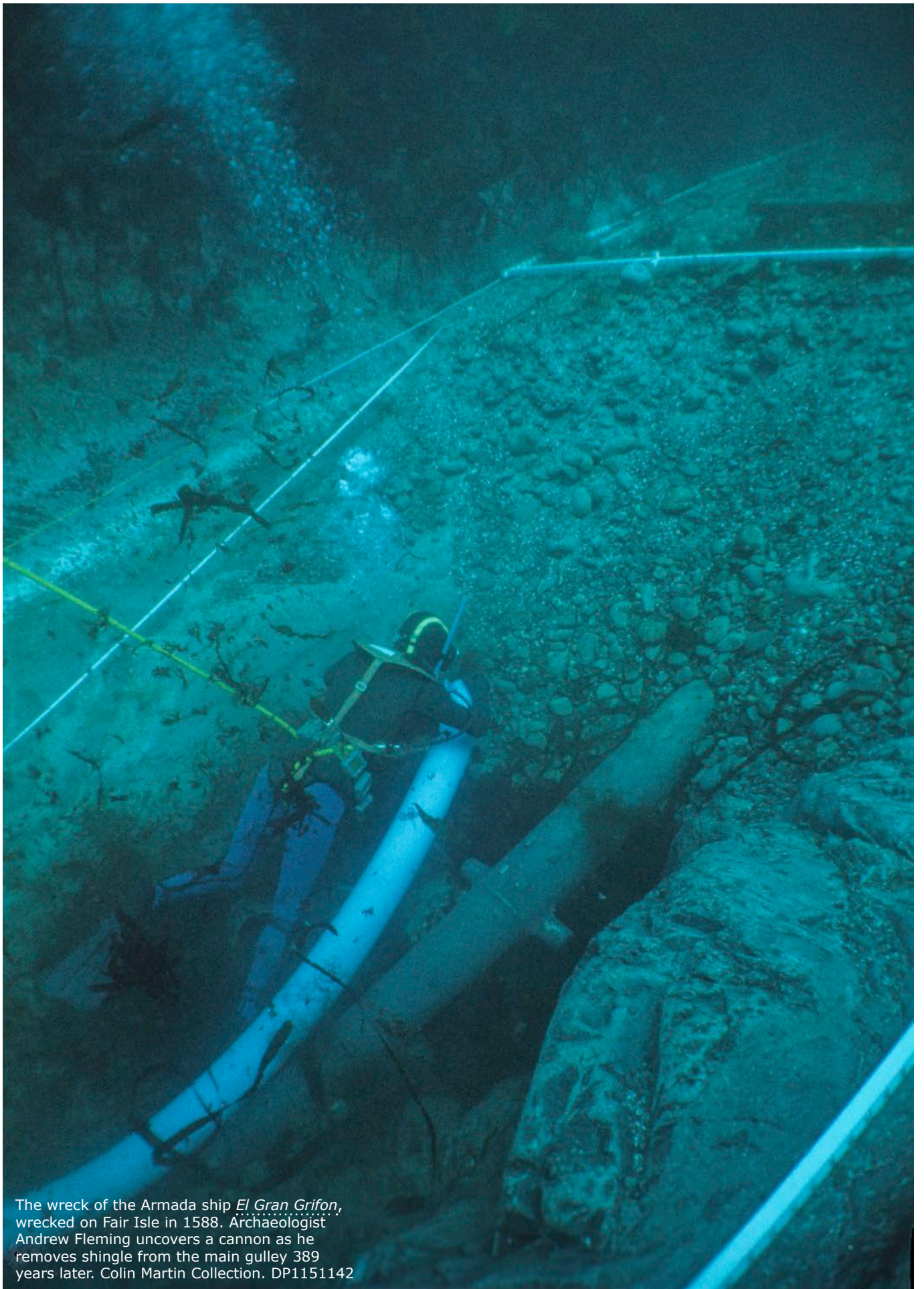
- *Obtain and digitise copies of Wessex Archaeology designated/ undesignated site assessments and other reports*
- *Digitise other collection material within the RCAHMS collection where appropriate, in discussion with Historic Scotland*
- *Enhance and improve the record of sites discovered during the Outer Hebrides Coastal Community Marine Archaeology Pilot Project and related projects (in liaison with Western Isles Council Archaeology Service)*

Objective 4.1

A considerable amount of fieldwork has been funded by Historic Scotland in relation to the administration of the Protection of Wrecks Act (1973) and to their broader responsibilities. The full paper and digital archives from these projects undertaken by WA Coastal and Marine will be deposited with RCAHMS in due course, and the majority of the projects are now at least partially archived. The table below illustrates the state of the archive: whether there is a paper copy of the report (Manuscript or MS), whether there is a digital copy of the report (WP – downloadable

pdf), and whether additional digital material has been deposited with RCAHMS ie geophysical datasets. One example of the later is the Campania digital archive that amounts to 2.5GB of data held in 34 files.

	RCAHMS Numlink	Digital Report	Paper Report	Additional digital data
<u>Tobermory Galleon</u>	22320	<u>WP000724</u>	MS2784	Multiple files
<u>Dartmouth</u>	102424	<u>WP000725</u>	MS2779	
<u>Duart Point</u>	80637	<u>WP000726</u>	MS2780	
<u>Mingary Castle</u>	167515	<u>WP000728</u>	MS2783	
<u>Iona 1</u>	102456	<u>WP000733</u>	MS5899	
<u>Campania</u>	96655	<u>WP000730</u>	MS2785	Multiple files
<u>Burntisland</u>	147079	<u>WP000729</u>	MS2786	Multiple files
Scapa Flow (Area)	Multiple	<u>WP000538</u>		In process
<u>Kennemerland</u>	1401	<u>WP000754</u>	MS2782	
<u>De Liefde</u>	102891	<u>WP000727</u>	MS2781	
<u>Siccar Rock</u>	151710	<u>WP000743</u>		
<u>Drumbeg HMPA</u>	320244	<u>WP000731</u>		
OHCCMAPP 2011 – 2012	Multiple	<u>WP000755</u>		
General (Aircraft Crash Sites at Sea)	Multiple	<u>WP000517</u>		
General (Characterising Scotland's Marine Archaeological Resource)	Multiple	<u>WP000720</u>		
General (Transition to Historic MPAs)	Multiple	<u>WP000732</u>		



The wreck of the Armada ship *El Gran Grifon*, wrecked on Fair Isle in 1588. Archaeologist Andrew Fleming uncovers a cannon as he removes shingle from the main gully 389 years later. Colin Martin Collection. DP1151142

Objective 4.2

A programme of record upgrade and digitisation was undertaken for the Protection of Wrecks. This included three major strands:

1. the separation of the lengthy descriptions in Canmore into separate ‘events’, each with greatly improved metadata clarifying when and by whom they were written, and improved links to relevant collection material and bibliographic information
2. the assessment of collection material, improvement of cataloguing information, and digitisation of key items
3. the production of short summary texts to clarify the history of the vessel, its exploration and the collection

	RCAHMS Numlink	Collections enhancement	New summary Text	Events
<u><i>Kennemerland</i></u>	1401	Yes	Yes	Yes
<u><i>Wrangels Palais</i></u>	71037	Yes	Yes	Yes
<u>Duart Point Wreck</u>	80637	Yes	Yes	Yes
<u><i>Dartmouth</i></u>	102424	Yes	Draft	Yes
<u>Burntisland Wreck</u>	147079	No	No	Yes
<u>Mingary Castle Wreck</u>	167515	No	No	Yes
<u>Kinlochbervie</u>	194560	Yes	Draft	Yes
<u>HMS <i>Campania</i></u>	96656	No	No	Yes

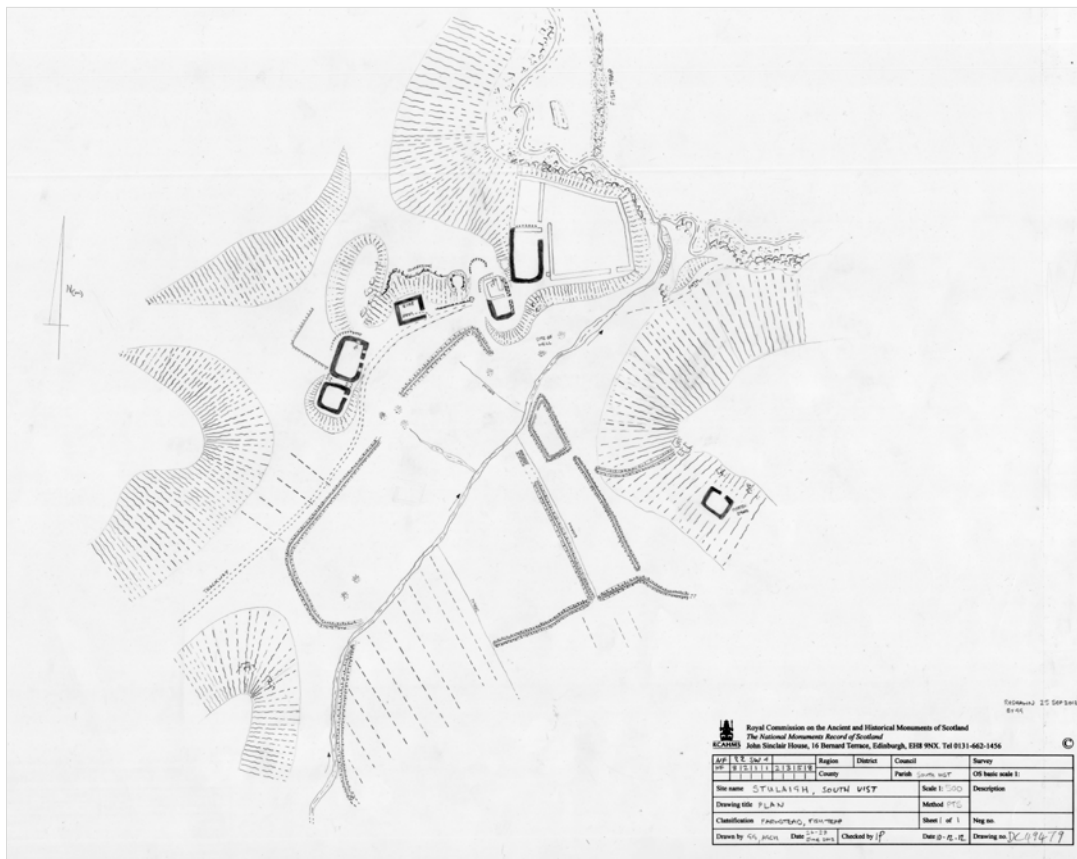
Objective 4.3

Enhance and improve the record of sites discovered during the Outer Hebrides Coastal Community Marine Archaeology Pilot Project and related projects (in liaison with Comhairle nan Eilean Siar Archaeology Service)

The results of the OHCCMAPP project have been reported annually – WA Coastal and Marine Report 79440 and 79441 (Draft). The results of the 2012 – 13 year included detailed surveys and descriptions of archaeological sites in two locations on the remote east coast of South Uist, Caolas Stulaigh and Hartebhagh, neither of which had been subject to archaeological survey before.

Caolas Stulaigh

The settlement at Caolas Stulaigh provided an opportunity to study a post-medieval group of buildings found in close proximity to two large fish traps. The site consisted of the remains of a pre-improvement township of at least two houses, combined with an extensive area of formerly spade-cultivated land. Overlying this was a 19th century shepherd's house and sheepfold. Documentary evidence suggests the fish traps were used by the shepherd in the late 19th century, and the



An interpretative archaeological plan of the farmstead at Caolas Stulaigh. SC1319631

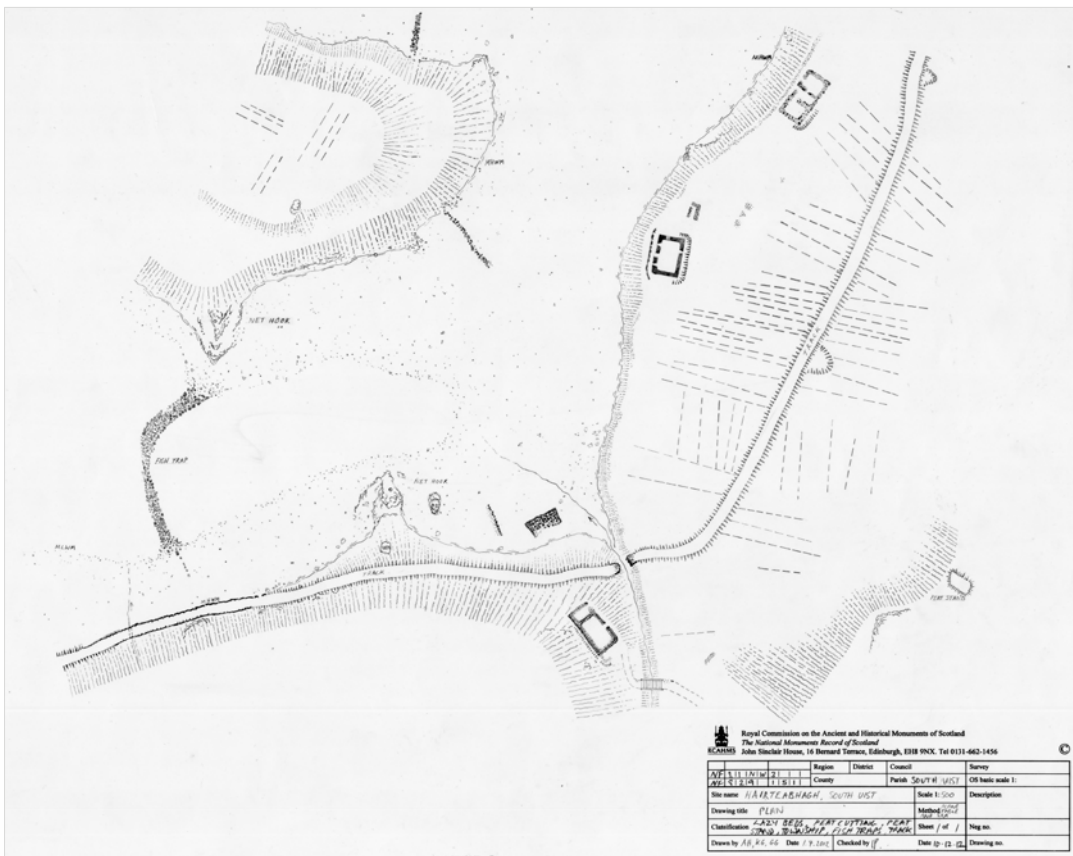
study area therefore provides one of the only securely dated fish traps in the Western Isles, and one that can be linked to use by the post-Improvement (ie sheep farming) land-use.

Site descriptions were written up for the principal settlement as Caolas Stulaigh as well as a nearby building and two fish traps. Descriptions were also made of a new site, probably a prehistoric settlement underlying a shieling group, and another well-known souterrain. All of the descriptions are available through Canmore as is a scan of the interpretative field survey of the principal settlement, undertaken at 1:500.

The drawings captures the natural topography, the position of the earlier (and larger) blackhouses, and the superimposed positions of the 19th century shepherd's houses. Elements of the cultivated landscape and the system of turf dykes and drains also feature on the drawing.

Hairteabhagh, South Uist

The settlement at Hairteabhagh provided another opportunity to study a multi-period settlement in a maritime context. A hut circle was located inland from the bay, one of only a handful known on the east side of

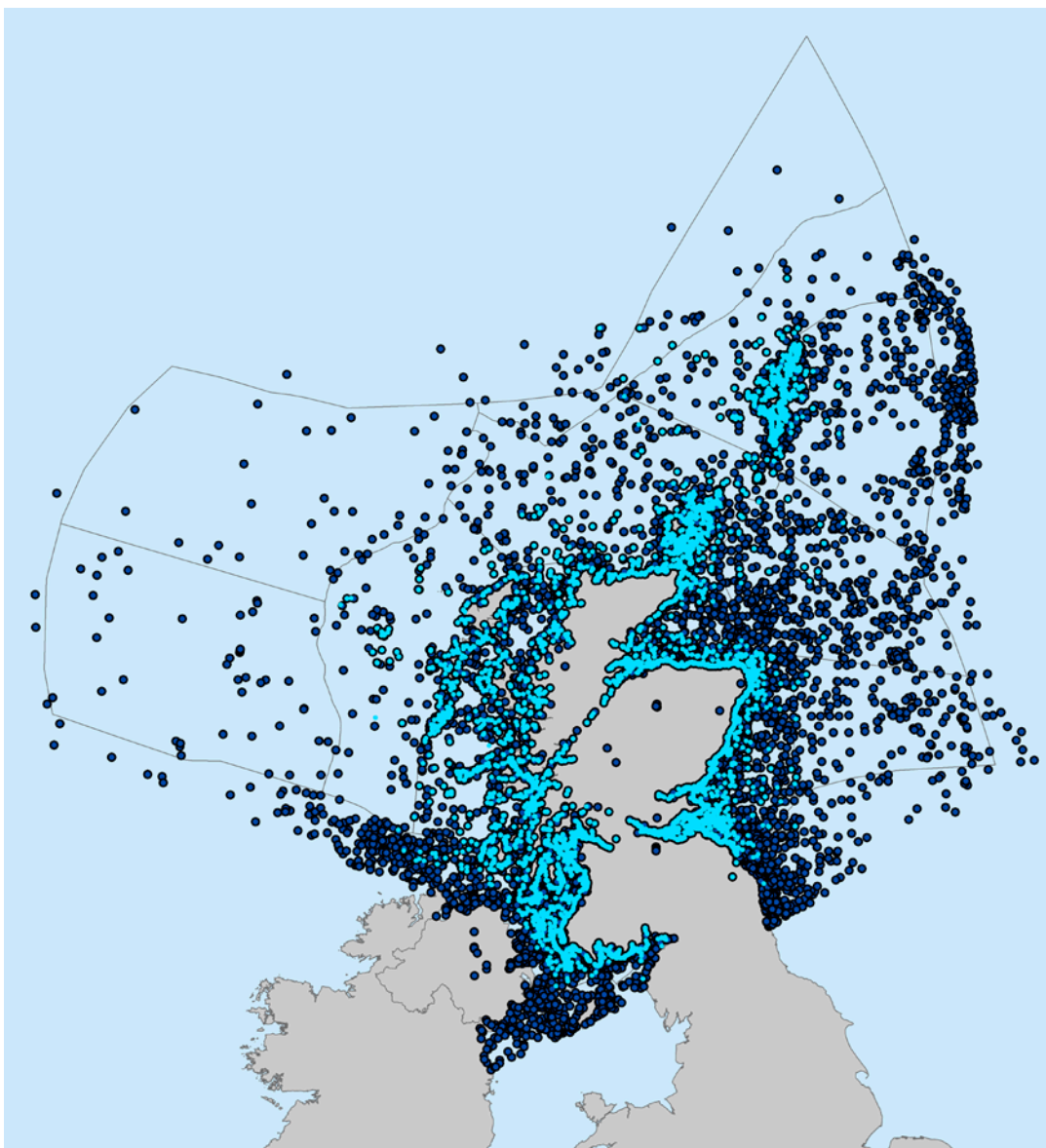


An interpretive plan of part of the Hairteabhagh township. Features include a fish trap, a well constructed track, lazy bed cultivation, earlier and later phases of buildings, peat stack stances, quarries and what are probably intertidal field boundaries. SC1320075

the Outer Hebrides, while another settlement mound was located to the north west. Around the bay a series of byre-houses illustrated the development of vernacular architecture with the change to shorter buildings with gable chimneys and 3-bay frontages. Two features that may have been kelp kilns were also identified, as were a suite of fish traps and field boundaries that criss-cross the bay. A small area of the hinterland behind the bay was surveyed at 1:500 to provide an indication of the character of the settlement remains. Peat cutting was also noted, as were a couple of peat stack stances.

Conclusions

Project Adair has succeeded in significantly enhancing Canmore with information about the marine historic environment from a wide range of readily available sources. RCAHMS and Historic Scotland accept that a basic and current maritime record now exists for the Scottish seas that can be updated as our knowledge continues to improve. It is hoped that Canmore can therefore provide a useful knowledge resource to aid research into our marine and maritime heritage, as well as public appreciation and understanding of it. By making this information available to heritage curators, planners, developers and their consultants, it is also hoped that Canmore can provide a valuable information tool to aid the sustainable management of the Scottish Marine Area under Scotland's new marine planning and protection system.



A distribution map showing maritime records in Canmore before Project Adair – light blue – and after the data upgrade – dark blue.

Acknowledgements

Project Adair was funded by Historic Scotland, and thanks are due to Philip Robertson in particular. This report was written by George Geddes and edited by John Sherriff, Robin Turner, and Philip Robertson. Design and layout was by Alasdair Burns. Particular thanks are due to Hannah Smith, Project Officer for Adair for much of 2012, and to Derek Skinner, who undertook many hours of programming in order to ensure the success of the project. Emily Nimmo, digital archivist at RCAHMS, was also on hand to help with cataloguing conundrums.

Partnership projects during the year included those with WA Coastal Marine, including all members of their Edinburgh office, and with Colin and Paula Martin, the cataloguing of their archive material from pioneering work in the 1970s being one of the most rewarding and exciting aspects of a busy year.

References and Abbreviations

BEFS

The Built Environment Forum Scotland

Historic Scotland and the Built Environment Forum Scotland 2009

Towards a Strategy for Scotland's Marine Historic Environment.

Available at <http://www.historic-scotland.gov.uk/marine-strategy.pdf>

Martin, C 1998

Scotland's Historic Shipwrecks, London: Batsford

National Marine Planning Interactive

Available at <http://www.scotland.gov.uk/Topics/marine/seamanagement/nmpihome/nmpi>

Orkney Research Center Archaeology 2012

Mapping marine heritage sites in the Orkney and the Pentland Firth.

Available at <http://www.rcahms.gov.uk/>

RCAHMS 2012

Project Adair: Mapping Marine Heritage Sites to Support New Marine Legislation, Report for May 2012 – March 2013.

Available at <http://www.rcahms.gov.uk/rcahms-projects/project-adair>

RCAHMS 2013

Project Adair Wreck Map.

Available at <http://www.rcahms.gov.uk/rcahms-projects/project-adair>

RCAHMS Thesaurus

Available at <http://canmore.rcahms.gov.uk/>

WA Coastal and Marine 2012

OHCCMAPP Report (2011 – 12). Ref. 79440.

Available at <http://blogs.wessexarch.co.uk/ohccmapp/downloads/>

WA Coastal and Marine 2013

OHCCMAPP Report (2012 – 13). Ref. 79441.01

Available at <http://blogs.wessexarch.co.uk/ohccmapp/downloads/>

Wessex Archaeology 2011

'Scotland's Marine Data Heritage Audit'. Unpublished report for Historic Scotland. Available at <http://www.wessexarch.co.uk/projects/marine/scotland/historic-scotland-marine-data-audit>

Whittaker, I 1998

Off Scotland: a comprehensive record of maritime and aviation losses in Scottish waters, Edinburgh: C-Anne



A diving archaeologist carrying an oak lodging-knee recovered from the wreck of the *Dartmouth*, wrecked in the Sound of Mull in 1690. SC1326642 Colin Martin Archive.

Appendix 1: Technical Methodology

UKHO

The methodology for entering the UKHO database into Canmore was summarised in the first year report, and is detailed here. It was developed in partnership between the Archaeology and Database Project Managers and the Archaeology Project Officer. The methodology was iterative and went through a number of developments over the course of the year 2012 – 13.

1. Archiving the data

The dataset (native format), metadata, cover letter and memorandum of agreement are catalogued in RCAHMS digital archive and linked to every affected site record. The download included the full dataset (ie records classified by UKHO as LIVE, DEAD, ABEY, LIFT), including fousls, but excluding 26 records defined as commercially sensitive. The extent of the data was delimited by the Scottish 200 nautical mile fisheries area plus a 20 mile buffer to ensure we are certain of including imprecise and inaccurate site locations that are relevant to Scottish waters. We received a dataset of 5,265 records in April 2012.

2. Transferring the data to a modern format

The dataset had to be transferred from an ASCII delimited text file into an Oracle database.

3. Establishing a concordance with Canmore

A concordance exercise was developed to match new UKHO records to those within Canmore using a combination of searches on location, name, and classification. It was not possible to identify UKHO id numbers in the existing dataset although notes within existing Canmore fields suggested that c1,600 site records had information derived from UKHO within them.

We applied a programmed search to Canmore Maritime (ie Site Number >7,999), finding site records with names, classifications or locations that matched the new UKHO data. A series of nine search filters were applied to Canmore and each was manually tested using a 10% sample. The test allowed us to prioritise the filters so that we could accept one in preference to another. A small number of UKHO entries (131) matched to the duplicate Canmore records and all of these were checked manually and assigned another match or a new site.

Filters in order of preference

- No.7 – Site Name + Site Location (2km radius) + ‘Hydrographic Office 1995’ in the existing Archaeology Notes field
- No.8 – Site Name + Site Location (5km radius) + ‘Hydrographic Office 1995’ in the existing Archaeology Notes field
- No.9 – Site Name + Site Location (10km radius) + ‘Hydrographic Office 1995’ in the existing Archaeology Notes field
- No. 1 – Site Name + Site Location (1km radius)
- No. 2 – Classification = Obstruction + Site Location (1 km radius)
- No. 3 – Classification = Obstruction + Site Location (10 km radius)
- No. 5 – Site Location (10m)

Filters not used in final match due to failed 10% test

- No. 4 – Site Name + Site Location (10 km)
- No. 6 – Site Name

The resulting concordance exercise produced a matching dataset of 1,572 records, which equated almost exactly to the number of site records in Canmore with ‘Hydrographic Office 1995’ in their Archaeology Notes.

A separate concordance exercise had to be undertaken for the site type (classification) used by UKHO which included 691 unique values. These were manually correlated with the RCAHMS Thesaurus which is available [online](#) where new terms can be suggested.

4. Creation of new site records where necessary

If an existing match could not be found a new site record was created. All of the characteristics of the site were generated from the location and site information provided by UKHO, including the classification, form, and administrative areas.

5. Creation of a dedicated event for each UKHO entry

Every UKHO entry is represented through an ‘event’, effectively a note which can be individually linked to other data. Each event represents all of the data held by UKHO, including all positional information, the main note fields, and the site id. Each event is dated by the dataset (ie April 2012) and linked to a ‘Project Event’ and the archived data.

6. Event to site linking

Each of the events is linked to a Canmore record and available to view and interrogate online.

7. Position

UKHO dated includes site notes that describe the original position information which varies with date, datum, accuracy and equipment. This information is held in a free text field. Secondly the data holds those original positions in decimal degrees, and the datum in another field (including a note if the datum is unknown). Thirdly they hold all positions in decimal degrees, datum WGS 84. In order to achieve this situation, they have applied various transformations to their positional data.

During this project we have used the WGS 84 positions, but the earlier information is included in the event linked to the site record.

The process for generating the position of new sites has been

- Take UKHO WGS 84 Position in decimal degrees
- Calculate WGS 84 position in degrees and decimal minutes
- Calculate OSGB 36 position
- Calculate OS 5km Map No.
- Calculate Site No.
- Calculate Administrative boundaries

The process for updating the site positions of known site records

- Take UKHO WGS 84 Position in decimal degrees
- Calculate WGS 84 position in degrees and decimal minutes
- Re-calculate OSGB 36 position
- Re-calculate OS 5km Map No.
- Re-calculate Site No.
- Re-calculate Administrative boundaries
- Check for cross-references to previous Site No. in other site records and update

Notes on the UKHO data

There are some complications with the UKHO dataset and the process which are important to bear in mind going forward.

The positions held by UKHO can give an indication of accuracy that is incorrect. For example, if a wreck was originally noted in an imprecise position, but this has been block shifted three types (without removing implicit zeros), one can end up with a precise position. This difficulty has not been addressed in the entering of data to Canmore.

Some UKHO records contain less information than they did in the 1995 download. This appears to be a legacy of data upgrades and alterations over the last 18 years, and should for the most part be addressed by the 1995 data held in Canmore, and that from other sources.

Some UKHO records refer to casualties rather than losses. In general, these can be identified by the text ‘Posn [Position] for Filing Only’ or similar in the descriptive fields, but it does not directly relate to the precision of the position. Because this information was not easy to extract from the dataset, all UKHO data has been classified as ‘form=wreck’, rather than ‘form=casualty’, but in instances where a Canmore record is being updated, form is not being changed.

UKHO Database linked to existing sites	1,572
UKHO Database linked to new sites	3,680 (234% on existing UKHO linked sites)
Updated positions	1,572 (100% of existing)
Updated classifications	537 (34% of existing)
Updated names	1,502 (95% of existing)
Total number of new events	5,254
Total number of sites linked to UKHO database	5,247

Whittaker

A similar process to that used for the UKHO data was used for the Whittaker database, a much larger and less precise dataset. A concordance exercise was undertaken using a combination of programmed and manual searching to link existing Canmore sites and Whittaker entries. This was designed to include both entries that had been recorded in Canmore from Whittaker's published text, and those that referred to the same site, but had not previously been reference recorded to Whittaker. Furthermore, it was designed to include over 7000 records in Canmore without an entered location.

The Whittaker-Canmore matching process was done using two filters:

- Match ran on the name of the vessel and the date the vessel was lost (in notes field) – matched 11,521 leaving 7,033 unmatched
- Match ran on name against site name and date the vessel was built and lost – matched total 11,712 leaving 6,842 unmatched.

To the 11,712 matched through this process, 1,654 were added by manual matching on name and location, leaving a total of 13,366 ie 82% of those entered from the published source.

- A match on positions within 2 km brought up 418 records which were included in the final upload, but will be specifically checked in 2013 – 14.

Before the data was entered into Canmore, we were able to roughly quantify the effects we expected. Over 16,141 records were already linked to Canmore, and the matching process only linked about 13,366 of these, leaving about 2,500 records that we would expect to be duplicated during the process. Some of these records were almost impossible to match given that the positions had not been previously entered into Canmore, the notes were minimal or empty and the vessel name was 'Unknown'.

Whittaker Database linked to existing sites	13,120
Whittaker database linked to new sites	5,434
Updated positions	4,389
Updated names	11,727
Updated classifications	5,437

Whittaker's dataset referred to 546 unique classifications and these were manually correlated with the RCAHMS thesaurus. Duplicate matches were returned for 331 records and these were manually checked and amended to unique matches.

13,366 Whittaker entries were matched to existing Canmore entries while an additional 5,188 entries had no Canmore entry including 2233 vessels with name = Unknown. 1,394 had no 'type'. 185 no comment.

ORCA

The ORCA dataset included a report, two databases, and two GIS shapefiles, all of which were accessioned into RCAHMS digital archive in 2012, with appropriate metadata.

The site description database included 577 entries, which noted positions, names, and descriptions of known and unknown archaeological sites and geophysical anomalies. For each entry by ORCA, an 'event' was created to hold the information such as name, notes and sources, and linked to the site record. All of these events were linked to a 'project event' for the data upload, and in turn to a project event for Adair.

Each of the 462 new site records were generated from the dataset without peer review, using the names, locations, descriptions and sources provided by ORCA. Site classifications were already generated from the RCAHMS thesaurus, so there was no need for a manual correlation. The ORCA data also included a GIS shapefile of site-area polygons, and an accompanying database. These will be incorporated into the Defining Scotland's Places dataset in due course.

ORCA database linked to existing sites	115
ORCA database linked to new sites	462
Updated positions	102
Updated classifications	507

Appendix 2: Statement of Requirements

Project Adair, mapping marine heritage sites to support new marine legislation [1 May 2012 to 25 March 2013].

Purpose

1. This project brief sets out the basis for a fixed-term, joint Historic Scotland/RCAHMS project that builds on work undertaken by Project Adair in 2011–12 to begin to improve the record of the marine historic environment and to ensure information is efficiently and effectively disseminated to underpin Scottish Ministers' policies in relation to marine planning and protection in the seas around Scotland. The project is to be funded by Historic Scotland and delivered by RCAHMS.

Context

2. The Marine (Scotland) Act 2010 and UK Marine and Coastal Access Act 2009 provide Scottish Ministers with new powers to undertake marine planning, licensing, protection and enhancement of the historic environment in the coasts and seas around Scotland from 0–200 nautical miles, in order to deliver sustainable economic growth from our coasts and seas. Key areas of anticipated growth are in relation to offshore wind and marine renewable energy development where ambitious government targets in relation to climate change are setting the agenda.
3. Articles 2, 5 and 7 of the Valetta Convention commit state parties including the UK to develop inventories of archaeological sites on land and at sea, to integrate consideration for archaeology within planning systems, and to disseminate knowledge about archaeological discoveries. For the purposes of this statement of requirements, 'inventories of archaeological sites at sea' encompass both the RCAHMS national inventory and the local authorities' Sites and Monuments or Historic Environment Records (SMRs/HERs). The RCAHMS national inventory is a record of all known and reported elements of the historic environment in Scotland, on land and at sea. Local Authority SMRs/HERs are records of all known and reported elements of the historic environment in that local authority area. These are normally maintained locally and, on land at least, often contain more records than the RCAHMS national inventory. Under terrestrial planning legislation, local authorities have a primary role in providing heritage advice on sites and monuments down to the mean low water mark. For marine aquaculture, this role also extends offshore. The local authority SMRs/HERs are therefore important tools to help inform local authorities' decision-making in planning and protection of the historic environment, as well as being crucial in helping the public to understand and appreciate the local heritage resource.

4. RCAHMS began work to integrate maritime data within the national inventory (a monuments database known as Canmore) in the 1990s, as part of its role to identify, survey and analyse the historic and built environment of Scotland; to preserve, care for and add to the information and items in its national collection; and to promote understanding, education and enjoyment through the interpretation of the information it collects and the items it looks after.
5. The statutory role undertaken by Historic Scotland on behalf of Scottish Ministers in the marine environment now includes protection and management of heritage sites of national importance, provision of heritage advice to Marine Scotland on the new marine planning system, and environmental assessment of impacts to archaeological sites in the marine environment. Both Historic Scotland and RCAHMS are now receiving an increased level of enquiries relating to offshore developments, particularly in connection with the location of offshore renewable energy installations.
6. It is recognised that the provision of adequate archaeological advice requires access to reliable, up-to-date information on the historic environment. *Towards a strategy*¹ observed that the compilation of inventories of archaeological sites on the seabed around Scotland is at an early stage of development. Many local authority archaeology services hold records for coastal and marine areas within their SMRs/HERs, although it is generally the case that local authority records tend to be much less complete for marine areas than for terrestrial. The baseline position for the national inventory database, Canmore, (correct to 5 April 2011) is c20,423 maritime records (7% of overall database), comprising 17,637 reported casualties (86% of the overall maritime record), 1,617 located wrecks (8%), 676 aircraft (3.3%), and 314 obstructions (1.5%). <15% are records with any seabed location or basic descriptive information. *Towards a strategy* observed a bias towards recent remains, mostly shipwrecks. Records for earlier sites and submerged landscapes, as well as recorded information for heritage beyond territorial waters (ie the 12–200 nautical mile zone) are very scarce. Moreover, marine geophysical data gathered by a wide range of public sector organisations and industry remains to be interrogated for the heritage information it contains.
7. At a time when a statutory marine planning system with national and regional tiers is being introduced Scotland-wide to guide sustainable development in the seas around Scotland, curators and planners would benefit from improved information about the marine historic environment to inform designation and stewardship of nationally important sites, and to underpin marine planning. An improved record would also be of wider public benefit.

¹ *Towards a strategy for Scotland's marine historic environment* (2009), published by Historic Scotland in association with the Built Environment Forum of Scotland.

Goals and Strategic Aims

8. The ultimate goal is a comprehensive and widely available record of the marine historic environment, to help support Scottish Ministers' marine planning and protection policies and to help guide sustainable economic growth in the coasts and seas around Scotland. Advancing our knowledge about marine heritage and making this information widely available will help to realise the full potential of the marine historic environment as a resource – cultural, educational, economic and social – for the people of Scotland and further afield. This is the key challenge for the marine historic environment identified in the pre-consultation draft Scottish National Marine Plan.
9. The aim of Project Adair in 2012–13 is to build on work in 2011 to begin to enhance the inventories of archaeological sites through coordinated data gathering, interpretation, archiving of key national marine data sets and other high priority areas identified in Historic Scotland's marine strategy 2012–15.

Criteria for Prioritising Objectives

10. The following key criteria have been selected to prioritise the objectives for this work programme in order to ensure best value for money:
 - Work must enhance inventories of archaeological sites at sea in relation to any or all of the following: all types and periods of marine historic assets that have left demonstrable remains around Scotland's coasts and seas; spot-finds and known seabed obstructions; designated historic assets including the extent of any protected areas; the spatial definition of the key elements of the historic character of the foreshore and seabed; delineated zones of archaeological potential for submerged terrestrial sites and landscapes; and wrecks of ships and aircraft.
 - The work must support marine planning work in relation to the key proposed areas for offshore and marine renewable energy (as this is likely to be a high priority for any incoming new SG administration given ambitious climate change targets and the forthcoming Scottish National Marine Plan).
 - The work must adopt the principle of 'gather data once, use many times', making use of existing data-sets and knowledge where at all possible to answer relevant questions. It must be undertaken in accordance with principles established by the Marine Environment Data Information Network (MEDIN); all

data must be efficiently entered into existing data management structures for onward dissemination using existing mechanisms where possible, or new mechanisms as appropriate to support emerging marine planning systems.

Objectives

11. The following objectives for the programme of work 2011 – 12 have been defined as a result of evidence gathered from the following scoping studies:

- Towards a strategy for Scotland's marine historic environment (HS/ BEFS 2009)²
- Scotland's marine data heritage audit (Wessex Archaeology unpublished, 2011)³
- The draft report of the Scottish Archaeological Research Framework (ScARF) marine-maritime group (forthcoming)

² See <http://www.historic-scotland.gov.uk/marine-strategy.pdf>

³ See <http://www.wessexarch.co.uk/projects/marine/scotland/historic-scotland-marine-data-audit>

Tasks, Project leads, Methodology and Success Measures

Objective	Methodology	Success Measure
1 – To complete integration of the Whittaker database and updated UK Hydrographic Office download of wrecks data received in 2011 – 12 within the RCAHMS national inventory Canmore database for the Scottish territorial waters and offshore waters (ie 0 – 200 nautical miles around Scotland) and make this information widely available to support new marine planning systems	<p>UKHO download from 2011 – 12 to be integrated within Canmore using methodologies defined in 2011 – 12</p> <p>Whittaker database received from Ian Whittaker in 2011 – 12 to be integrated within Canmore using methodologies defined in 2011 – 12</p>	<p>monthly update of progress, including numerical statistics where appropriate</p> <p>online webmap service for wrecks and density of losses around Scottish waters incorporates integrated data, made available to Marine Scotland/Historic Scotland/local authorities/ the public</p> <p>online publication through National Marine Planning interactive</p> <p>Pastmap 2</p>

Objective	Methodology	Success Measure
<p>2 – To integrate within the RCAHMS National Inventory, data and information gathered in 2011 – 12 as part of Project Adair by Orkney Research Centre for Archaeology (ORCA), and by Wessex Archaeology (site surveys in Scapa Flow) in order to enhance the record for the Orkney Waters and Pentland Firth and to make this information widely available to support new marine planning systems</p>	<p>Integration into Canmore of information from data-base provided by ORCA to RCAHMS</p> <p>integration into Canmore of site information from Wessex Archaeology report into the survey of high priority sites in Scapa Flow</p>	<p>integration of data completed and HS informed</p> <p>summary qualitative/quantitative evaluation of ORCA data integration and enhancement set out in Project Adair annual report</p>
<p>3 – To work collaboratively with third parties supported by Historic Scotland to carry out further priority data gathering/archiving work. The objective for RCAHMS is to ensure that this information is archived within the RCAHMS National Inventory and resulting information made widely available to support new marine planning systems</p>	<p>Any data requested from RCAHMS by the third parties will be provided free of charge</p> <p>RCAHMS will participate in project steering groups (by video conference where appropriate)</p> <p>RCAHMS will coordinate with third parties to ensure that data/collection material generated is developed and delivered in a manner that allows for assimilation within the national inventory/collection through RCAHMS data structure deposition mechanisms</p> <p>RCAHMS will undertake a 10-day field trip with Wessex Archaeology as part of the Outer Hebrides Coastal Community Marine Archaeology Pilot Project (OHCCMAPP)</p>	<p>Work summarised in Annual Report</p>

Objective	Methodology	Success Measure
<p>4 – To upgrade records for existing designated underwater sites and other key coastal and marine sites, including digitisation of archaeological reports and other material and to make this information widely available to support new marine planning systems</p>	<ul style="list-style-type: none"> ● Obtain and digitise copies of Wessex Archaeology designated/ undesignated site assessments and other reports; ● Digitise other collection material within the RCAHMS collection where appropriate, in discussion with Historic Scotland ● Enhance and improve the record of sites discovered during the Outer Hebrides Coastal Community Marine Archaeology Pilot Project and related projects (in liaison with Western Isles Council Archaeology Service) 	<p>Work summarised in Annual Report</p>
<p>5 – To hold a public seminar to present results of Project Adair to date, and to involve key stakeholders in considering next steps</p>	<p>RCAHMS to organise project seminar towards project end date</p>	<p>Project seminar held and good feedback received</p>
<p>6 – To keep Historic Scotland up-to-date with progress and prepare an annual report setting out progress against the objectives set out above</p>	<ul style="list-style-type: none"> ● Set agendas, hold monthly update meetings at RCAHMS offices, and issue minutes ● RCAHMS to prepare annual report for online publication, including typesetting 	<p>Submission of draft report to HS in advance of conclusion of project and signed off by Historic Scotland SRO</p>



Project Adair is a partnership between
Historic Scotland and RCAHMS