From Peat Spade to Tangle Trade:

The Industrial Heritage of the North Isles

Summary Project Report

By Dan Lee & Sean Bell

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NORTH ISLES LANDSCAPE PARTNERSHIP SCHEME
ORCA Orkney Research Centre for Archaeology
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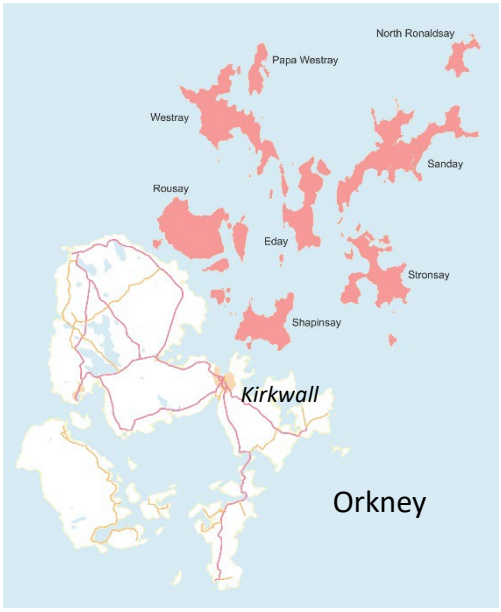
What is the Industrial Heritage Project?



From *Peat Spade to Tangle Trade: The Industrial Heritage of the North Isles* celebrated, researched and investigated industrial heritage across the North Isles of Orkney, and the people who worked in these sites and landscapes.

The industrial heritage of Orkney is an important historical and archaeological resource with a variety of forms and types, including a number unique to the North Isles. Despite the abundance of monuments and documents dating from the last few hundred years, these sites have been relatively neglected. The *Industrial Heritage of the North Isles* project was developed to promote and encourage the study of these sites, highlight their value as a heritage resource and to enable island residents and visitors to understand the development of these industries in the landscape, their family histories and personal connections at different local, regional and national scales.

Over 2023 and 2024, a programme of collaborative research, archaeological fieldwork (survey and building recording), walks and art workshops was undertaken, exploring sites of industrial heritage and setting them in their inter-island and wider contexts.

The North Isles have a distinctive heritage resource for the post-medieval and modern periods and the project focused on eight islands north of the Orkney Mainland: Rousay, Shapinsay, Westray, Papa Westray, Eday, Sanday, Stronsay and North Ronaldsay.

What is Industrial Archaeology?

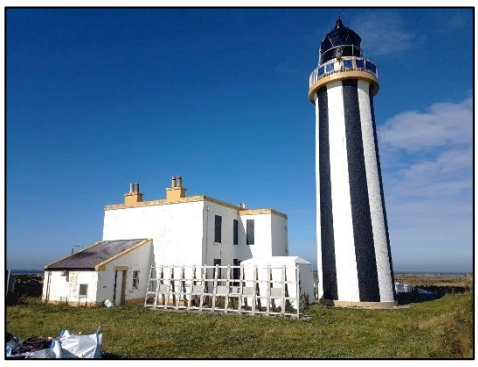
Industrial archaeology is a sub-field of the discipline, that investigates sites and landscapes from our industrial past to the present day, ranging from medieval mills, the industrial revolution and the current decline in manufacturing. It involves recording and documenting sites, linking archive records and people's stories to buildings, places and objects.

Name plate on a threshing machine recorded at Flowera, Stronsay (L). Timber roof and roof trusses in Holland Mill Tramp, Papa Westray, which were recorded during the site surveys.

We use a variety of methods to record sites, such as walkover survey (which identifies sites and creates a basic record), measured survey (e.g. using an accurate GPS to make a plan) and archaeological building recording which involves making a systematic record of a building, both outside and, where accessible inside, using photography and notes.

What is Orkney's 'Industrial Heritage'?

The industrial heritage of Orkney encompasses a range of activities such as peat-cutting, kelp burning, tangle-drying, quarrying, mechanisation of farming, fishing, linen production, milling, salt and energy production and features related to the transportation of materials for processing or manufacture, as well as finished items to markets. Orkney's rich industrial heritage also includes photographs of working life and people, observations and stories told and written by islanders and visitors and official records. Working activities range from continuous endeavours, such as agriculture, seasonal tasks like herring fishing, or a single event, for example the construction of a



Start Point Lighthouse, Sanday (Above), North Ronaldsay Old Beacon (Below)

lighthouse. They can involve a few individuals, a number of families or the whole island community.

The current record of industrial sites in Orkney is variable. Some islands have had coastal surveys (for example those carried out by EASE Archaeology in the 1990s), which identified and recorded the remains of activities such as kelp-burning and tangle-drying. Many industrial sites are listed in Scotland's National Record of the Historic Environment (NHRE) (accessible here: Canmore), but the record is not exhaustive. Very little systematic survey has been undertaken on industrial sites in Orkney and on some islands, the record is poor. Island knowledge is key to help fill in some of these gaps.

Project Aims & Themes

The North Isles of Orkney have a distinctive heritage resource for the post-medieval and modern periods. During the seventeenth to twentieth centuries, the isles were home to several key industries that form a fundamental component of their archaeological and built record.

The aim of the Industrial Heritage project was to explore a selection of industrial remains on each island and to deliver a series of activities centred around these. We approached each island and the sites using several key questions, including:

- Where are our industrial sites and structures?
- What are they like and how were they built?
- What were they used for?
- Are there any stories or memories about industrial sites?
- How can we record and look after them?

In addition to the built heritage, the project involved working with existing heritage centres, which hold valuable archive information, images and artefacts from this period of Orkney's past.

Several themes were identified with which to focus our fieldwork: **Traditional Farming and Agricultural Improvement**, **Mills and Milling**, the **Kelp Industry** and **Herring Fishing**.

What Did We Do?

The project offered a range of opportunities for members of the community to get involved. Initial launch events were held across the Isles, which introduced the project to each community. A key element of the early stages of the project undertaken at each launch was **participatory mapping** in which maps were used to capture the location and details of industrial sites with islanders. Large A0 maps of each island with known industrial sites marked were

discussed and annotated. This process identified key sites that would form the focus for field work activities.

ORCA staff, Dan Lee and Sean Bell, presenting at a launch event.

Other activities included **Archive & Research** work, carried out in the Orkney Archive and island heritage centres, and including use of historical maps via the National Library of Scotland online mapping service (National Library of Scotland). A series of **Walks** to sites helped the project team and islanders plan fieldwork together. These were followed up by a series of **Site Surveys** in which islanders worked with archaeologists to record selected sites in detail, with measured survey and building recording. We made a record of what the sites are like now to create up-to-date baseline information and, following on from this, several new **3D Models** were created for a number of sites so that they could be accessed more widely. Sound walks explored an industrial heritage theme during four **Art & Archaeology workshops** in Shapinsay, Stronsay, Sanday and North Ronaldsay.

Map with annotated location and details of industrial sites added by islanders showing sites across Rousay, Egilsay and Wyre.

Visit the project website to find out more:

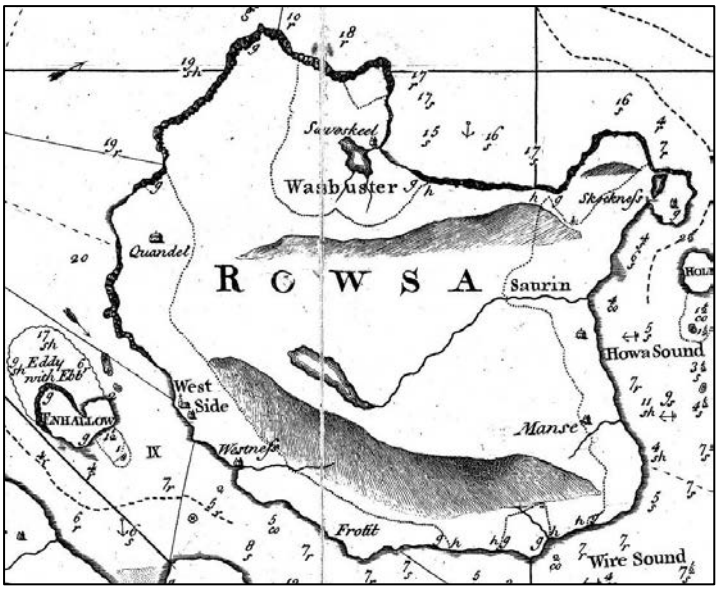
https://archaeologyorkney.com/industrial-heritage/

Our work will enhance the National Record for the Historic Environment so that industrial sites can be better identified, understood and looked after. A new interpretation poster for industrial heritage in the North Isles of Orkney was created for heritage centres, visitors and schools and a new online resource can be accessed on the UHI Archaeology Website: https://archaeologyorkney.com/industrial-heritage/ sharing the results of the activities and research.

Download the project reports and poster here

Orkney in Context

During the seventeenth to twentieth centuries, Orkney was home to several key industries that form a fundamental component of the archaeological and built record. The industrial sites of Orkney developed, more often than not, as a result of large-scale rapid changes that were linked to wider economics and politics. The life of islanders during the seventeenth and eighteenth centuries was dominated by the slow-downs and upturns in the wider British economy, and the people of Orkney were often at the mercy of external events and influences. The period was also one that saw tensions between the commitment to the farming year and other economic incentives. The seventeenth century saw several poor harvests resulting in limited exports to market, famine, poverty and bankruptcy.



Rousay hill dykes in 1750 (Murdoch MacKenzie), Orkney Library and Archive.

During the late eighteenth and nineteenth centuries, three key industries developed across Orkney: **kelp processing**, **herring fishing** and **linen production**. Although these were all secondary occupations for farm labourers and their family, at times they almost came to dominate the islands' economy. These industries made a huge impact in Orkney for the best part of a century and in the North Isles in particular. The kelp processing and herring fishing industries have, for example, created a distinctive and unique archaeological and architectural legacy across the North Isles, in the varied sites, remains and ruins.

What Types of Sites Are There?

Farms and Farming

Until the early nineteenth century, settlement and agriculture were based on the run-rig system, with scattered farmsteads and the use of common land for grazing. This remained essentially unchanged for centuries across the North Isles. This pattern of land use and settlement can often be traced back to the Viking and medieval periods through place-name evidence, and many of the existing patterns of land use and the township layout are likely to have begun in the medieval period. Orkney kept much of its Norse farming traditions and systems of land-holding into the nineteenth century.

Other than the surviving areas of unimproved land, the physical evidence for the pre-Improvement landscape is visible as the remnant remains of the rig and furrow cultivation throughout the islands, along with the hill-dykes that defined townships or divided farmland from hill land.

Agricultural Improvements

By the early nineteenth century some of the resident gentlemen-farmers were keen to implement the agricultural improvements seen across large parts of mainland Scotland. Widespread land enclosure began in earnest in Orkney in the early 1800s and involved the division of the common land. The collapse of the kelp industry accelerated the need for landowners to find other ways in which to make their land-holdings more productive. Early improvements in Shapinsay by David Balfour, for example, were followed by more widespread improvements and squaring of fields in the mid- to late-nineteenth century across Orkney, sometimes with enforced developments such as farm amalgamations and tenant evictions.

Stove model farm, Sanday (L), and a threshing machine at Flowera, Stronsay (R).

Many of the buildings and machinery from early agricultural improvements survive today, from the model farms such as Greentoft on Eday and Stove on Sanday, and planned villages, such as Balfour village (originally called Shoreside), on Shapinsay. There are the remains of water mills and threshing machines still tucked away in barns.

Mill and Milling

Mills are an essential part of the historical fabric of the built environment of the North Isles and were, essentially, engines designed to perform useful tasks, primarily the processing of foodstuffs. Across the North Isles, examples of water-powered, wind-powered and animal-powered mills and milling machinery can be found. Later, motor-powered mills were introduced, perhaps the most notable example in the North Isles being the 'Diesel Mill' at Millhouse in North Ronaldsay. Thirteen vertical water-mills dating to the eighteenth or nineteenth centuries have been identified across the North Isles, in North Ronaldsay at Hooking Mill, Papa Westray, Shapinsay, Rousay, Eday, Sanday, Stronsay and Westray. The larger mills, such as Meikle Mill in Stronsay and Millhouse in North Ronaldsay, would undertake grinding for a number of farms and possessed different grindstones for multiple grains and produce, such as corn, bere meal. Some also had an integral corn-drying kiln, for example Odin-ness in Stronsay (see below).

There are 25 windmills or wind-engines listed in Canmore across the North Isles, although no complete examples survive. The stone base for a windmill survives at Millhouse Mill, North Ronaldsay and Holland, Papa Westray.

Hooking watermill, North Ronaldsay (L) and corn-drying kiln at Odin-ness, Stronsay (R).

Many of the mills survive today in ruinous conditions or, in some cases, they have been restored. Despite their numbers, very little formal recording of mill sites has previously been undertaken in Orkney.

Kelp processing

Kelp had been an important long-standing resource for the farmers of Orkney for use as manure. From about 1720, kelp was exported from the Isles to serve the needs of the glass-making industries and soap factories in the northeast of England. Methods were first developed in Stronsay, and Orkney soon became a key exporter in the late eighteenth and early nineteenth century as markets grew. Tenants were put to work on the shore, often at the expense of agricultural activities, and the lairds were able to make large profits for very little investment. The industry collapsed in the 1830s - switching the lairds' attention to agricultural improvements - with a brief reprieve in the late-nineteenth century for iodine production, and again at the end of the twentieth century for dried tangles for the alginate industry.

Windmill base at Peckhole, North Ronaldsay (R).

Recording the remains of a kelp-pit (L) steethe (tangle dyke), North Ronaldsay.

Evidence of the kelp and tangle industries can still be found around the shore of the North Isles. Kelp working areas with kelp-pits (stone-lined hollows in the ground used to burn the seaweed) and tangle-dykes (also known as *steethes* or *beeks*) for drying seaweed, can still be found. Many are now being covered by sand or eroded by the sea. There is an urgent need to record them before the tangible remains of this important industry are lost.

Spotlight Case Studies

Farming

Redcastle, Eday

Redcastle or 'Reidscastle' is located in the northwest of Eday and is first depicted in detail on the 1881 Ordnance Survey map. There are three, east-west aligned ranges. The north range comprises four buildings of varying widths, including a 2-storey roofless dwelling house, a barn and square corn-drying kiln and storage shed (former house). The central range contains a roofed byre, metalworking forge and dairy (both roofless), with internal features surviving in all of the buildings (e.g. the forge). The south range consists of a large byre. Outbuildings include a pig pen, hen house and water-powered threshing mill. It is likely that the farm originates from the late eighteenth to early nineteenth century, with additions as late as the early twentieth century (stone-built hen house).

Reidscastle farm, looking southwest (Top), corn drying kiln steps and flue (R), waterpower threshing mill (R).

Holland, Papa Westray

Holland Farm stands in the centre of Papa Westray. Its name is derived from Old Norse *hoy* meaning 'high-land'. The original Holland House stood about 400m from the present house, which was built in 1814, on the "Knowe of Old Holland".

The sixth laird, George Traill (d.1840), was the first to make agricultural improvements following the collapse of kelp prices in the 1820s after the end of the Napoleonic Wars and the removal of duties on foreign imports. His son, Thomas, made many improvements making Holland and Brough model 'improvement' farms but he was declared bankrupt in 1886 and the estate taken over by the creditors' Trustees.

Mill tramp exterior, Holland, Papa Westray

The site of Holland Farm is divided into two parts by Central Road which runs north-south. The photographic survey carried out as part of the Project focused on the original agricultural structures rather than the later twentieth-century buildings, and also Holland House which is no longer occupied as the main residence at the farm. A total of seventeen structures were surveyed.

East of the road, the buildings include the main farmhouse complex, Holland House, a house and bothy. The surveyed buildings to the west of the road were all agricultural in nature, including houses, a bothy, smithy, stables, barns, grain loft, covered horse mill, threshing mill, byres, corn-drying kiln and various roofless buildings and structures.

Mills & Associated Structures

Building recording was undertaken at several mills across the North Isles. Hooking Corn Mill on North Ronaldsay consists of a single-storey building, of stone rubble build, with crow-stepped gables at the northwest and southeast end, and a restored flagstone roof. The Diesel Mill at Millhouse, also on North Ronaldsay, is a two-storey building of stone rubble-build with stone ridges and a slate roof. A corn-drying kiln is located at the northeast end of the building, with a large timber vent in the roof. The internal machinery and engine survives.

Hookin Mill, Papa Westray, survives as a roofless, stone rubble-built structure, rectangular in plan, with large corner quoins. The remains of the waterwheel and infilled wheel-pit are visible in the remains of the eastern gable.

Hookin Mill, Papa Westray (L) and the Cornhouse, Westray (R).

The cornhouse near Broughton, Westray, has been provisionally dated to the late-eighteenth or early-nineteenth century and was used as a grain store. During the eighteenth century, bere and oats were exported from Westray, and these crops may have been stored at the site before being loaded on to a boat. The building is a two-storey, stone rubble-built structure with alternate canted quoins. Much of the flagstone roof has now collapsed, exposing the timber roof trusses.

Meikle Meal Mill, Mill Bay, Stronsay is a three-storey building, stone rubble-built with harling on the front elevation. Built in the early 1800s on the site of an earlier mill, it originally had two waterwheels. The northeast- and southwest-facing elevations are gabled with the overshot waterwheel housed in a roofless structure against the SW gable. A stone-lined mill-race is fed from a pond to the south-east. It was the last operating mill in Orkney, continuing into the 1970s.

Meikle Meal Mill in Stronsay, frontage and west gable wheelhouse (L), and Saviskaill mill with waterwheel in Rousay (R).

At Saviskaill Mill in Rousay, the south range of the farm has two stories, and houses a water-wheel on its south-facing elevation.

Shapinsay Slaughterhouse

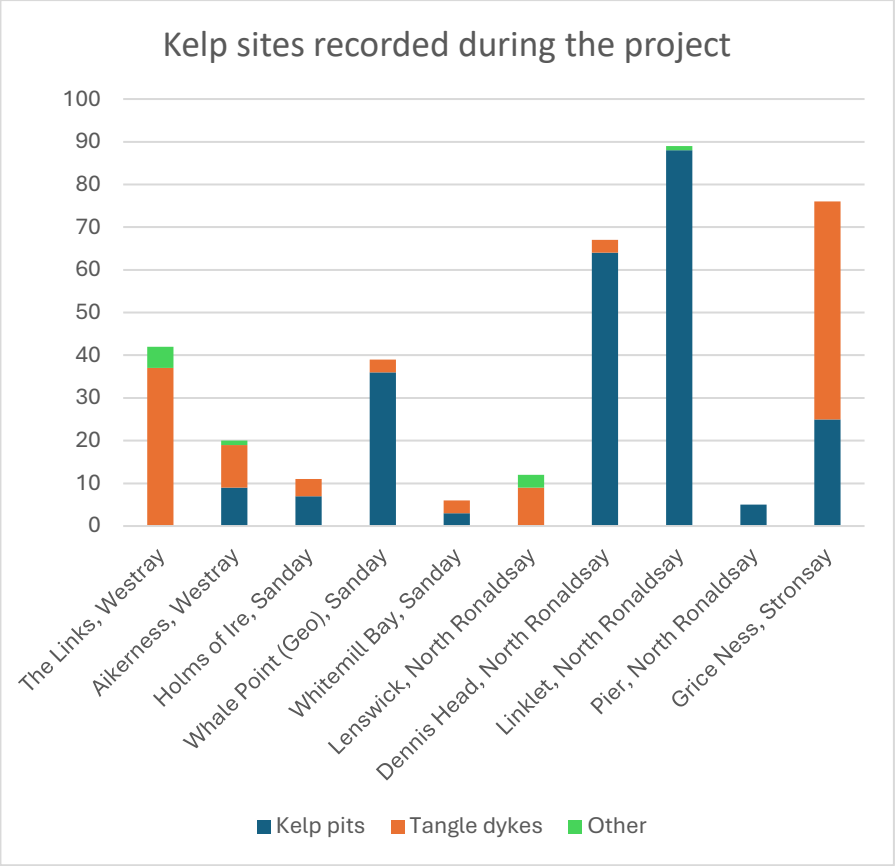
The slaughterhouse at Cotbrae, Shapinsay, is a small, stone rubble-built structure, rectangular in plan, with a double-pitched roof of flagstone tiles. There is a drain in the floor and vents in the walls. The roof is built to be very strong, with ten trusses, supporting iron fixing and hooks, presumably to hang carcasses. This is a rare example of a complete, purpose-built slaughterhouse.

Shapinsay slaughterhouse entrance (L), interior roof trusses and hooks for hanging carcasses (R).

Fuel pump (L) and Gasometer (R), Balfour Village, Shapinsay.

Kelp and Tangle Sites

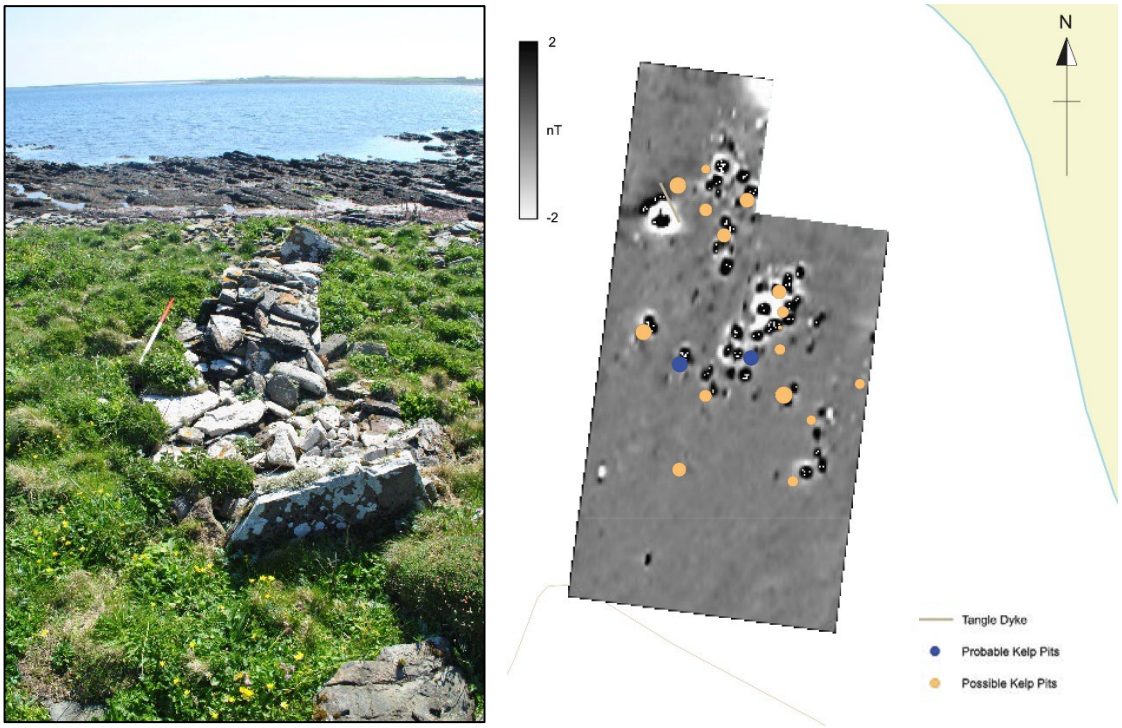
A variety of sites related to the kelp and tangle industries were recorded across the Isles. The majority of the features were kelp-pits followed by tangle-dykes, all of which varied in preservation. Other features at these sites included occasional boat nousts, ware slips and piers.



Kelp sites recorded during the project, showing numbers of kelp-pits, tangle-dykes and other features, such as boat nousts.

Whale Point (Geo), Sanday

A total of 39 features related to the kelp industry were identified across the headland of Whale Point in the northwest of the island. Of these, 36 were kelp-pits and the remaining three features were tangle-dykes.

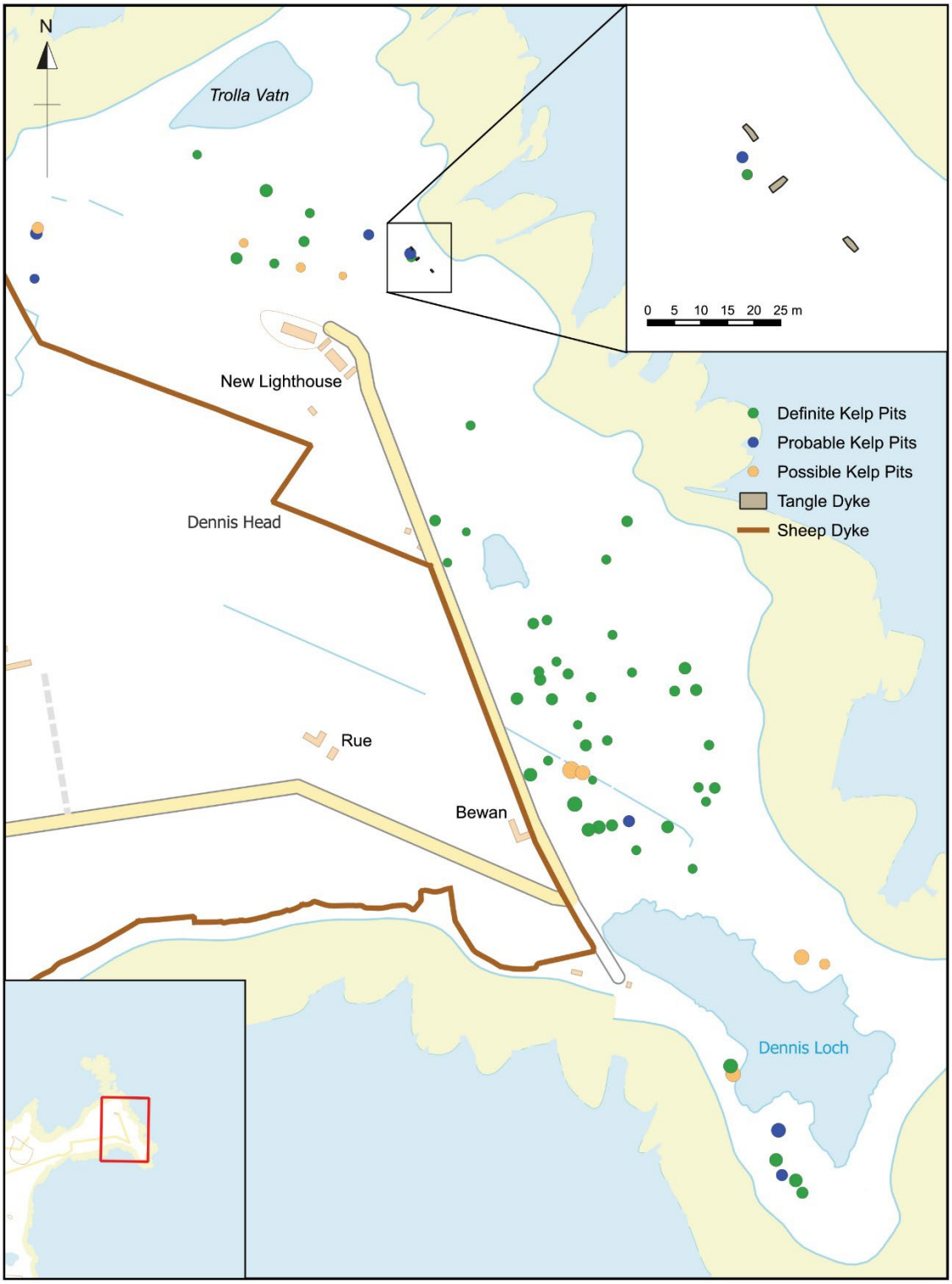


Tangle dyke at Whale Point (Geo) Sanday (L), and geophysical survey plot (magnetometry) showing kelp pits below (higher number) and those visible on the ground surface, demonstrating multiple phases of use.

Dennis Head

At Dennis Ness, North Ronaldsay, some 67 features related to the processing of kelp were identified. Of these, the majority were kelp-pits (63) with a handful of tangle-dykes present. Today, the kelp-pits were identifiable due to circular depressions within a generally flat ground surface, often with more abundant or varied flora.

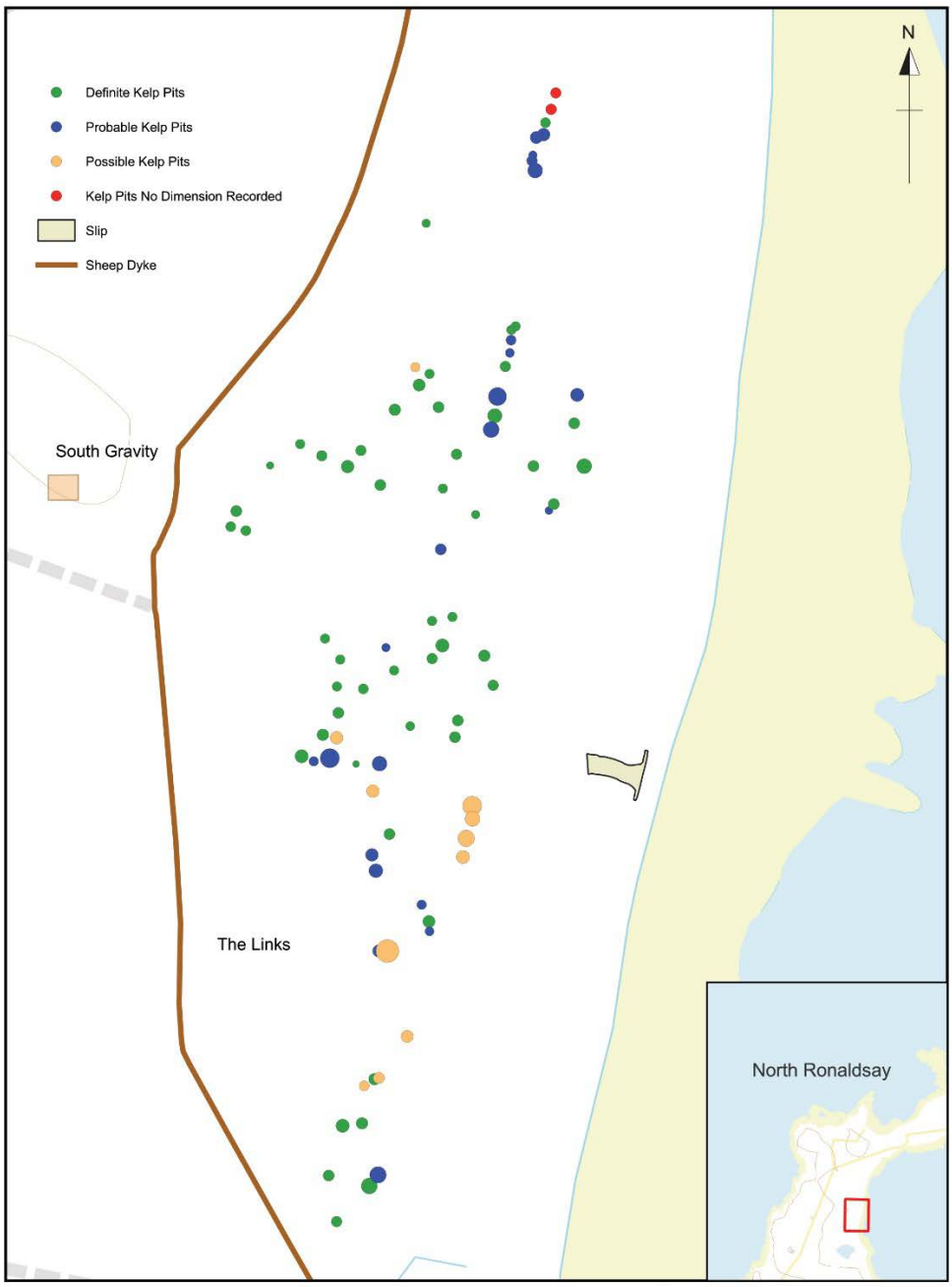
Lush flora growing inside a kelp-pit at Dennis Head (L) and ware slip at Linklet Bay (R), North Ronaldsay.



Kelp pits and Steethes (tangle dykes) recorded at Dennis Ness, North Ronaldsay

Linklet

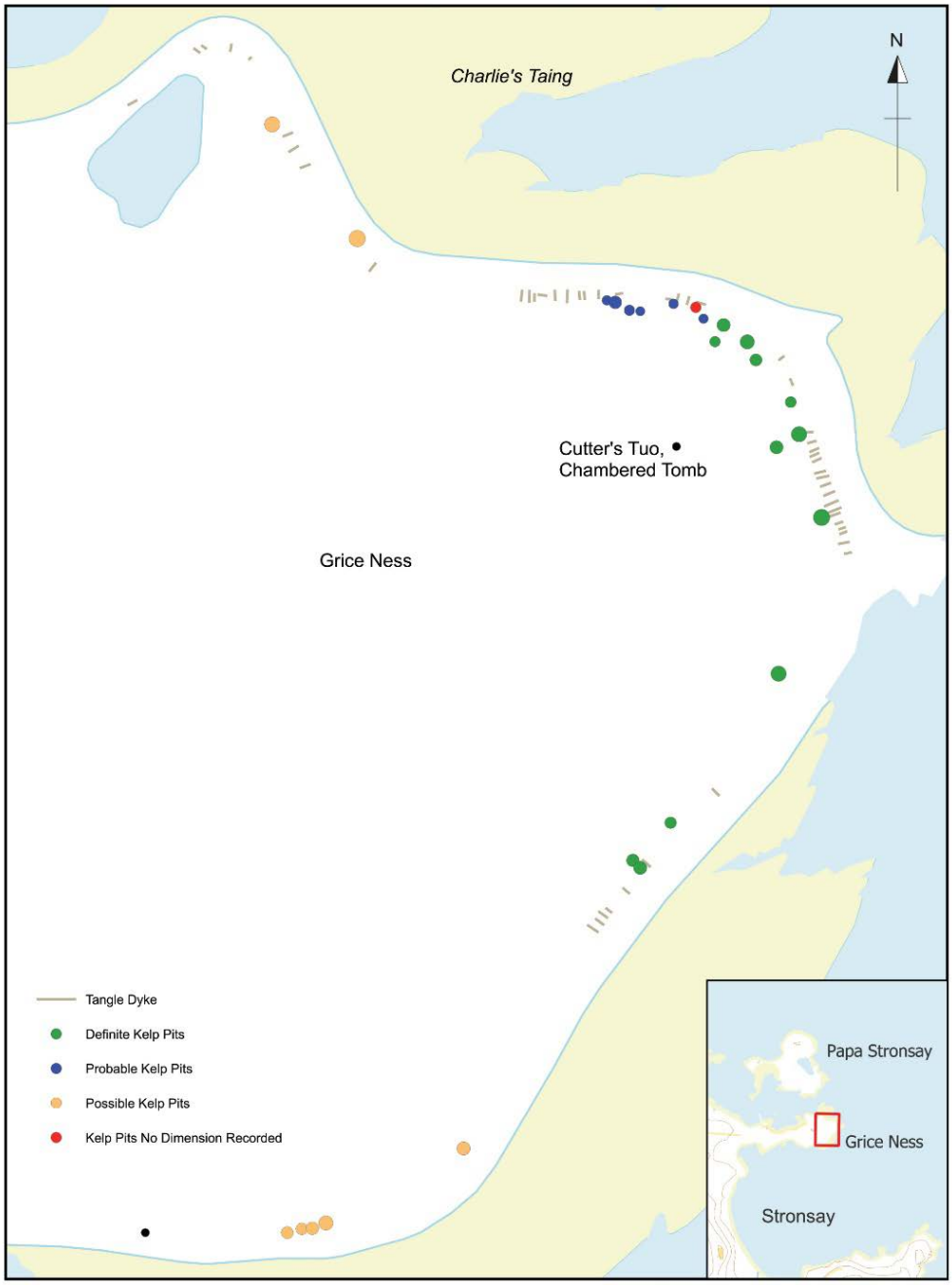
A total of 89 features related to the kelp industry were identified at Linklet with all but one of these kelp-pits. The remaining feature is a ware slip, which allowed the gathered kelp to be dragged from the beach up to the area of the kelp-pits (see below).



Kelp pits and a ware slip recorded at The Links, North Ronaldsay

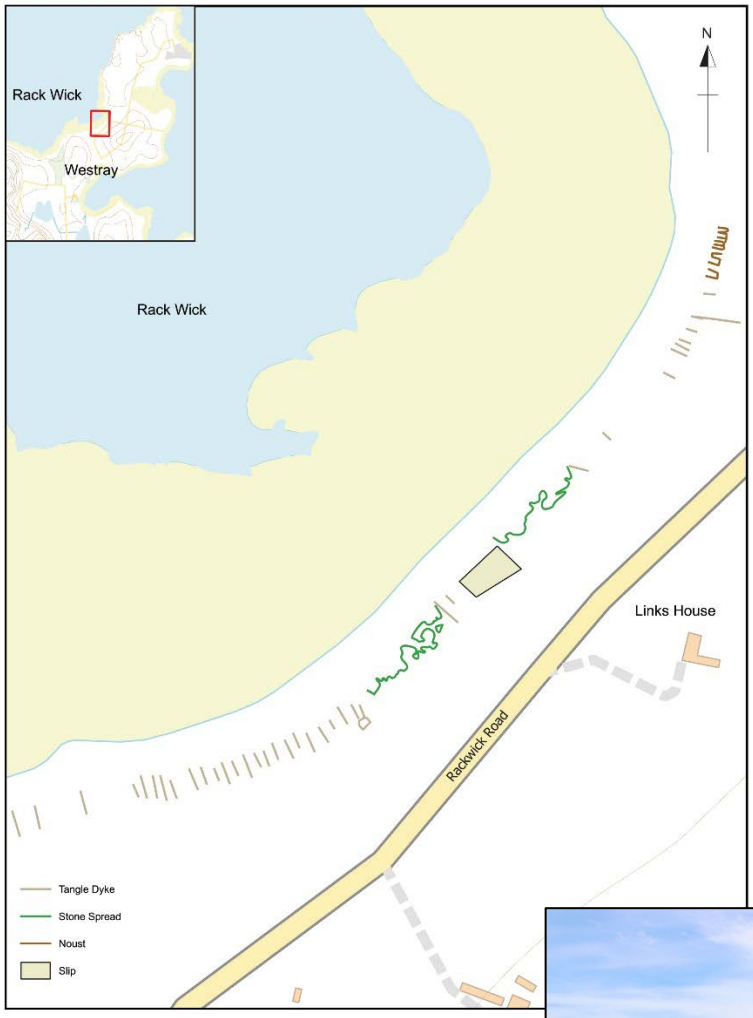
Grice Ness, Stronsay

A total of 76 features related to the processing of kelp were identified. Of these, 25 were kelp-pits and 51 were tangle-dykes. The kelp workings formed four discrete groups, with two or three outliers, including a group to the north and east of Grice Ness chambered cairn, to the south of the cairn and along the east edge of Sandy Geo.



Whitemill Bay, Sanday

Six kelp-working features were recorded at Whitemill Bay in Sanday, comprising three tangle-dykes and three kelp-pits. This once extensive kelp-working area is now largely obscured by sand or has been eroded by the sea.



Aikerness, Westray

A total of twenty features were identified along the coastal edge. A total of nine kelp-pits and 10 tangle-dykes were identified during the survey. The tangle-dykes formed three groupings, near the airport and two on Bow Head.

The Links, Westray

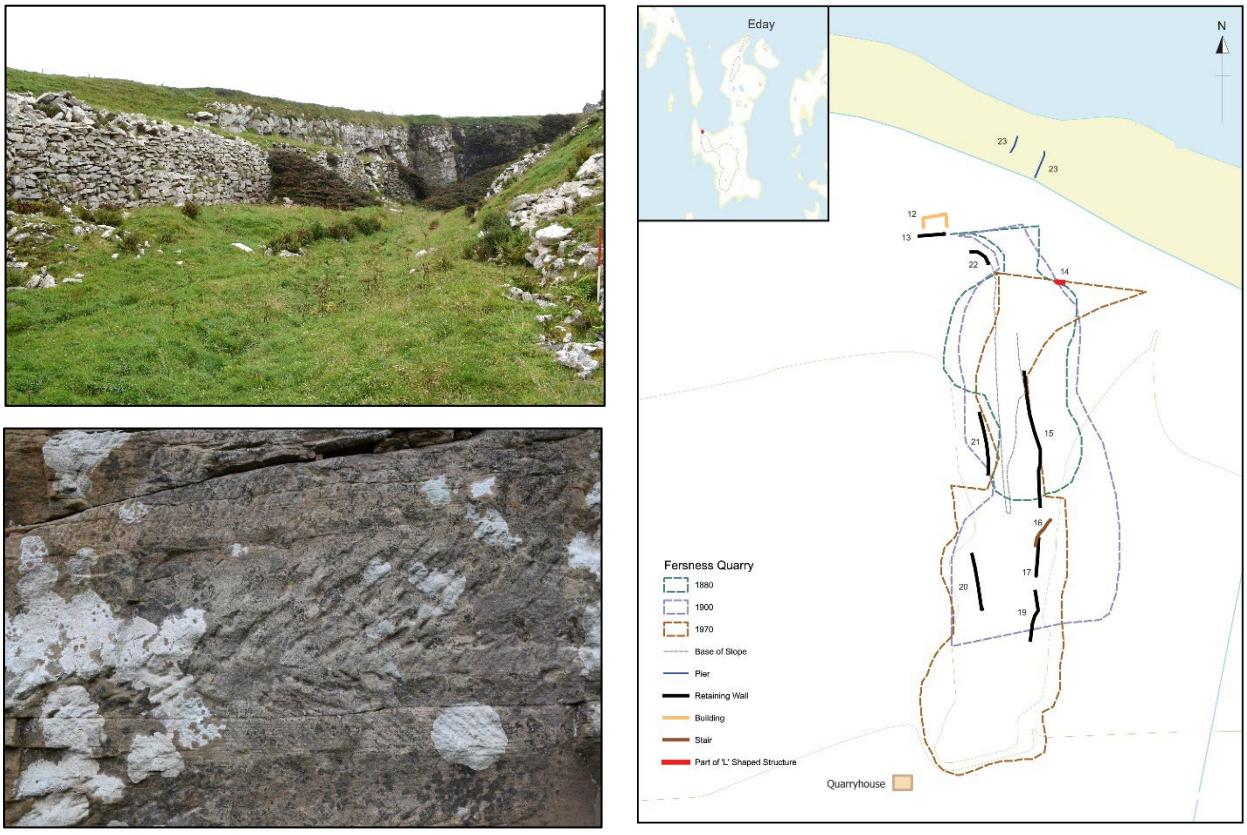
A total of 42 features were identified along the coastal edge at The Links. Of these, two were nousts and two were extensive spreads of stone material. A total of 37 tangle-dykes were identified, varying in length from 3.8m to 22.4m. Tangle operations for alginate began in 1966, with the heyday in the 1970s to 1980s (producing some 400-500 tons per year), reducing in the 1990s and ending in 1998.

Tangle-dykes at The Links, Westray, looking east

Quarrying

Fersness Quarry, Eday

Fersness Quarry is located on the south shore of Fersness Bay, in the west of Eday. The site comprises extensive quarry workings, cut into the coastal slope, the remains of a pier, and a former dwelling named Quarryhouse. The quarry was only used sporadically in the early nineteenth century, but it saw continuous use from 1855, including the construction of Quarryhouse (displaying some very fine masonry). The quarry grew in size considerably in the late nineteenth century, from 75m in length by 40m in width in 1881, to 150m in length and the same width in the 1950s. The surrounding farmsteads housed numerous quarrymen, their presence reflected in the fine masonry in small single-occupancy extensions to the farmhouses (e.g. Fersness Hill and Easthouse). Stone from the quarry was used to build Kirkwall Town Hall in 1905.



Fersness Quarry, Eday, looking southeast (L) and tool-marks visible on one of the exposed quarry-faces (R).

While much of the quarry faces at the north and southwest ends are obscured by spoil and stone debris from later workings, tooling and cutting marks are visible on the exposed work faces. Quarrying at Fersness eventually became unviable prior to World War 2. The pier was destroyed in the 1953 gale, effectively ending operations.

Herring Industry

Point of Cumley Gut processing factory, Stronsay

The Stronsay gut processing factory was commissioned in 1924 by James M. Davidson of Glasgow, who owned a number of such plants across the country. It was thought that a plant on Stronsay would be advantageous to the itinerant fish-curers who came to the island during the herring season. This site was built at Point of Cumley, situated well away from Whitehall village and the main road, and this location allowed site drainage to be connected directly to the sea. The plant was coal-powered and sought to use fish offal to manufacture additional products and manure. The first export from the plant is recorded on 31 October 1925 when the SS Silversprings conveyed 122 barrels of herring oil. This was followed by 15 barrels of fish oil on 13 August 1926, 530 barrels on 26 September and 80 barrels, along with 192 tons of fish manure, on 26 November. As well as processing offal from herring landed in Stronsay, sillocks were also imported from other islands for processing.

The processing plant was built when the herring industry was already in decline. After World War 2, a rise in the whitefish industry and technological developments leading to fewer efficient vessels, the herring industry was significantly reduced. The processing plant was put up for sale in 1947.

Today, the site comprises a raised, concrete platform, upstanding ironwork structures and concrete walling on a northwest-southeast orientation. The walled structure is sub-divided into four rectangular areas, possibly rooms and measures 44.3m by 6.7m overall with wall height varying from 0.8m to 1.75m above ground level. These rooms are not interconnected.

Gut factory, Stronsay, showing rooms within the concrete structure (L) and the concrete base with iron uprights (R).

The raised concrete platform extends northeast of the concrete range and measures 45m by 18m. A number of low, concrete buttresses are visible around its external edge and several features are located across its surface, including a concrete tank, a series of upright iron girders, concrete machine bases and a small inspection pit.

Engagement Summary

Activities

In total 32 events were held across the North Isles of Orkney throughout the project.

A total of 132 people signed up to the project and the launch talks were attended by 95, with 29 islanders coming to the drop-in sessions the next day. Sites visits after the lunch events were attended by a further 11 islanders.

Launch events were a chance to speak with islanders about the industrial sites and remains in each island and find out which ones they were interested in recording. While some industrial archaeology is listed in Canmore, much of it remains unrecorded. The input from islanders was key to identifying the industrial heritage and archaeology for each island.

The participatory mapping was very successful at the launch events, encouraging isles' residents to mark sites on large maps. The maps provided information for subsequent stages of the project. The survey days were held on 8 islands for 2 to 3 days each.

Participatory mapping (L; Alex Wright). Survey in North Ronaldsay (R).

The Art and Archaeology Sound workshops proved popular. Artist Amy Beeston and UHI archaeologist Ben Elliot led 'sounds walks' with small groups to explore the sounds of industrial spaces and were joined by 23 islanders in Shapinsay, Stronsay, Sanday and North Ronaldsay to walk and listen, and to discuss the present, past and future soundscapes of the islands.

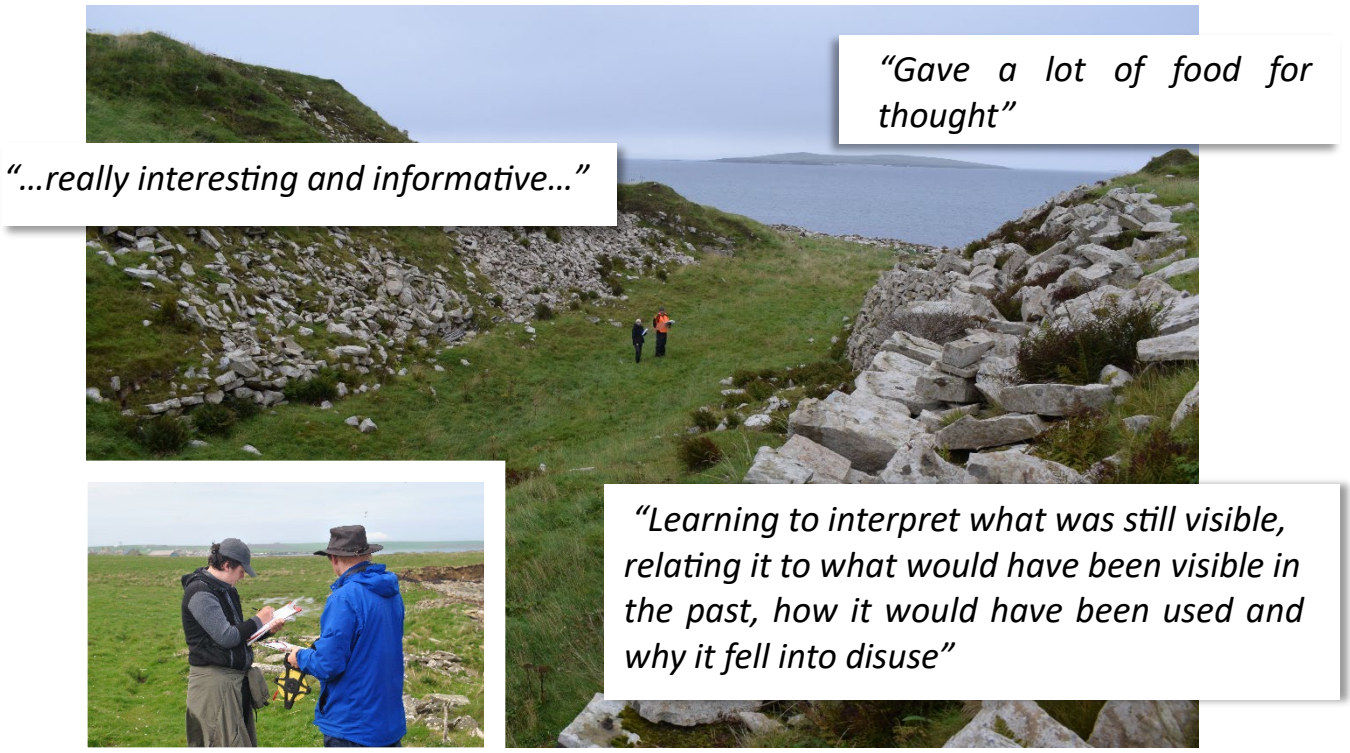
Group of participants on a Sound Walk on Sanday (left) and sound equipment used to explore Orkney's industrial soundscapes (right). Both images Amy Beeston.

Three schools were visited for in-class workshops reaching 36 pupils. In total, there were 222 engagements by islanders across all events and workshops.

Participant Feedback

Participants who attended archaeological fieldwork activities gave the activities 8-10 out of 10. Importantly, all these participants agreed or strongly agreed that they had learnt something new about archaeology! For those involved, the most memorable experiences were the talk in

the Community Centre, gaining an overview of the island's industrial heritage in a local/national context, discussion amongst the attending group, and the field visits.



Participant feedback on the various project activities.

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