

A Report on a Possible Fish Trap in Loch Shiel, Ardnamurchan:

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Introduction

In August, 2009, my small boat gently ran aground on the triangular submerged shelf to the south of Rubha Cumhann in Loch Shiel, Ardnamurchan, Scotland. The area was subsequently viewed on Google Earth and three possibly man-made features could be seen under water north of the shore of Claish Moss (Sites A, B and C in Fig. 1).



Figure 1 Sites A, B and C in Loch Shiel.

A preliminary inspection of the area was carried out in October, 2009. It was suggested that the features might have been crannogs (Wallis, 2009) despite Alex Hale of RCAHMS (pers. comm.) indicating that they could be fish traps of indeterminate age, though possibly quite recent. A more detailed survey was carried out from 16th to 17th December, 2009.

Setting

Present day

Sites A, B and C lie in the narrows of the lower basin of Loch Shiel, some two kilometres from Acharacle to the West. The South shore of the loch is bounded by Claish Moss which is in an eccentric raised mire (Derrick Warner SNH, pers. comm.). It is classified as a National Nature Reserve, a Special Area of Conservation (SAC) and SSSI (Fig. 2). The Moss is owned by Scottish Natural Heritage (SNH).



Figure 2 Claish Moss and Loch Shiel. Sites A, B and C are top left.

The shore of the Moss consists of peat 2.5 to 3.0 metres thick and this overlays fine sand. The thickness of the peat at this site is thicker than elsewhere along the shore and is being actively eroded southwards. High water levels in Loch Shiel and the greater height of the peat cliff are causing the collapse of large clumps of peat onto the sandy underlying sediment of the shore (Fig. 3).



Figure 3 Eroding Peat Cliff Scale: 1.0m

The curvature of the peat cliff conforms to the curve on the South side of Site B (Fig. 1) and this is probably significant despite the unknown age of the site. The foreshore consists of sand that has been colonised by grass and gorse though there are barer, more sparsely colonised patches (see Fig. 3).

It seems likely that the peat covering of the shelf has been eroded for at least several hundred years and has exposed the two underwater sites, unless they are more recent. Quite how much of the submerged shelf was originally overlain by peat is difficult to estimate. Aerial photographs done on behalf of the Ordnance Survey in 2000 and pre 1980 are held by RCAHMS and it may be possible to estimate the rate of erosion from them.

Geology

The submerged shelf and the underlying sediment of Claish Moss consist of fine sand and silt with occasional pebbles. The Moss began to form about eight thousand years ago after the last glaciation. It formed over a large flattish area of fluvio-glacial sediment (Thompson and Wain-Hobson, 1979). Various species of moss began to colonise the very shallow water covering the shelf of sand and over the millennia peat began to accumulate. This would retain water and thus allow the moss to continue to grow and cause the continued accumulation of peat to form a raised mire. Loch Shiel was marine for a long period before there was a marine regression that has been C^{14} dated and began around 4200BP (Thompson and Wain-Hobson, *op. cit.*). Moore, (1977) showed there is no evidence of the preceding transgression across Claish Moss (where he sampled) and it has been suggested by Thompson and Wain-Hobson, (*op. cit.*) that peat accumulation may have been rapid enough to cope with rising sea level. It would be of interest to know what happened to the development of the Moss around its northern and therefore marine margin in the period before the regression. Shennan (1977) investigated Holocene relative sea-level changes at Kentra Moss. Since the regression started, Loch Shiel may have only become a freshwater loch in the last couple of millennia.

The Features

Site A (formerly Site D)

This is a narrow slightly sinusoidal submerged strip of sand, about 60 metres long that runs southwards from Rubha Cumhann (See Fig. 4).



Fig. 4 Site A. A causeway or sand bar left isolated by sand extraction?

Site B

This is the largest underwater site and from Google Earth appears to consist of a pale ring averaging 29 metres in diameter surrounded by a darker circular belt about 15 metres wide (Fig. 5). The grid reference at the centre of the feature is NM 70729 68699 (hand-held GPS) and its Canmore ID is 301090 and Site Number is NM76NW25 (RCAHMS). In summer and other drier periods, the whole area of the site is no more than 0.4m deep and parts, especially to the south may be left exposed to air for some time. In October, 2009 the deeper parts of the site were briefly submerged to a depth of about 2 metres after a period of heavy rainfall.

The bottom consists of fine sand and silt overlain in areas by aquatic plants and fine detritus. In aerial photographs, the relief of the feature is made more apparent because detritus collects in deeper protected areas that appear darker. Any raised sandy areas are paler, though in the latest survey there was an aquatic plant rooted in the raised areas of sand (see Fig.12).

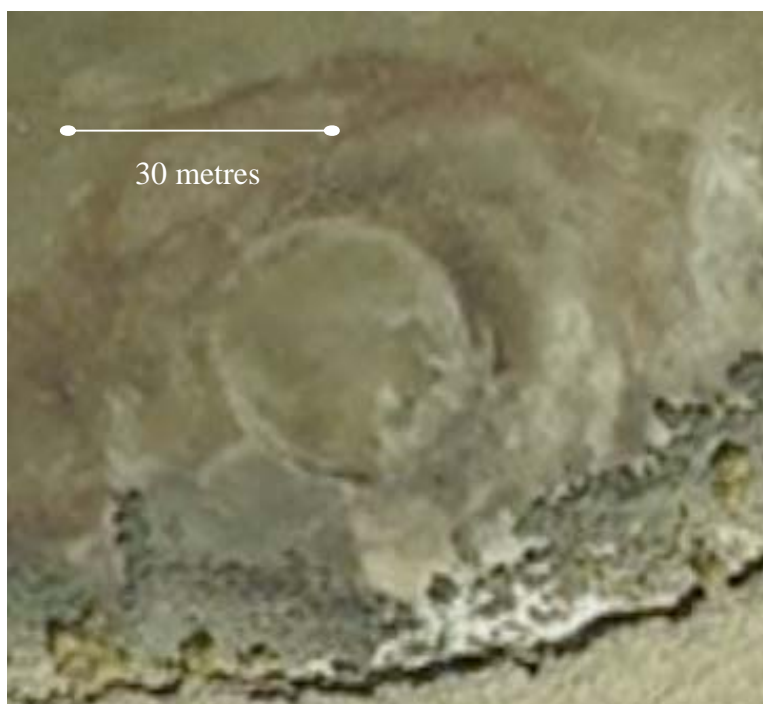


Figure 5 Site B. Pale areas are shallower and sandy. Deeper areas which trap silt are darker.

The outer area of Site B appears to overlap Site C and may therefore be more recent. However, if the features were old, then Site C would have been exposed before Site B by the erosion of the peat overburden. A few large stones (more than 0.1m long) were seen in the central area of the site.

A number of hollows in the central area may be post holes (Fig. 6). No timber has yet been found in any of these hollows but this may be explained as they are overlain by very shallow water. This would have subjected any wood to wave action and biodegradation within well-oxygenated surface water when the wood was first exposed by the erosion of the overlying peat many years ago.



Figure 6 Three possible post holes in line on the east side of Site B. Scale: 1.0m

Site C

This feature appears on Google Earth as a dark semi-circle of about 20 metres in diameter (Fig.7). It was not examined further.



Fig. 7 Site C is a faint semi-circle North-West of Site B.

Methodology

The nominal 'centre' of Site B was identified on Google Earth from two points (I and III) that were also recognisable on the ground and two tape measures were used to measure distances of 28.5m and 27.5m from points assigned I and III to the 'centre' respectively. A permanent marker of a steel weight on a spike was left on the bottom and a helical steel dog tether was screwed into the sand adjacent to it to attach a tape measure for profiling. The depth of the bottom was measured every 0.5 to 2.0m with a metre rule along four transects orientated N-S, E-W, SW-NE and SE-NW magnetic. The accuracy of the depth measurements depended on the height of ripples but was always within +/- 0.005m. The first pair of transects was measured on 16th December and the latter pair on 17th December, 2009. The depth at the centre was 0.25m on 16th and 0.21m on 17th so the later data was corrected appropriately. The magnetic bearing to the 'centre' and the distance of the post holes were also measured. There may be other post holes that were not recorded in this survey due to lack of time.

Results of transects

Figures 8-11 show the four profiles across the centre of Site B. There is an inner sand bank surrounded by a trough and a further bank, most notably in the East, West, North-West and North-East of the site. The outer bank in the West is isolated, crescent-shaped and about four metres long. The outer bank in the East joins the inner bank just to the South of the line of the E-W profile (see Fig. 12). The East to West and South-East to North-West profiles indicate that the depth of the central region increases by about 0.1m to the North and West. There is a shallower area within the inner bank to the North-East. This appears as a paler area in Figure 5. There may be some infill in the South-East, possibly as a result of the erosion of sand from the shore below the peat (see also Figure 5). Double banks in the North, South, South-East and South-West segments (Fig. 9, 10 and 11) are not distinct, if indeed they existed originally. The latter three areas are so shallow that they are well within the seasonal range of the loch's water level and any pronounced banks might have been levelled by wave action.

Fig. 8 Transect across Site B from East to West

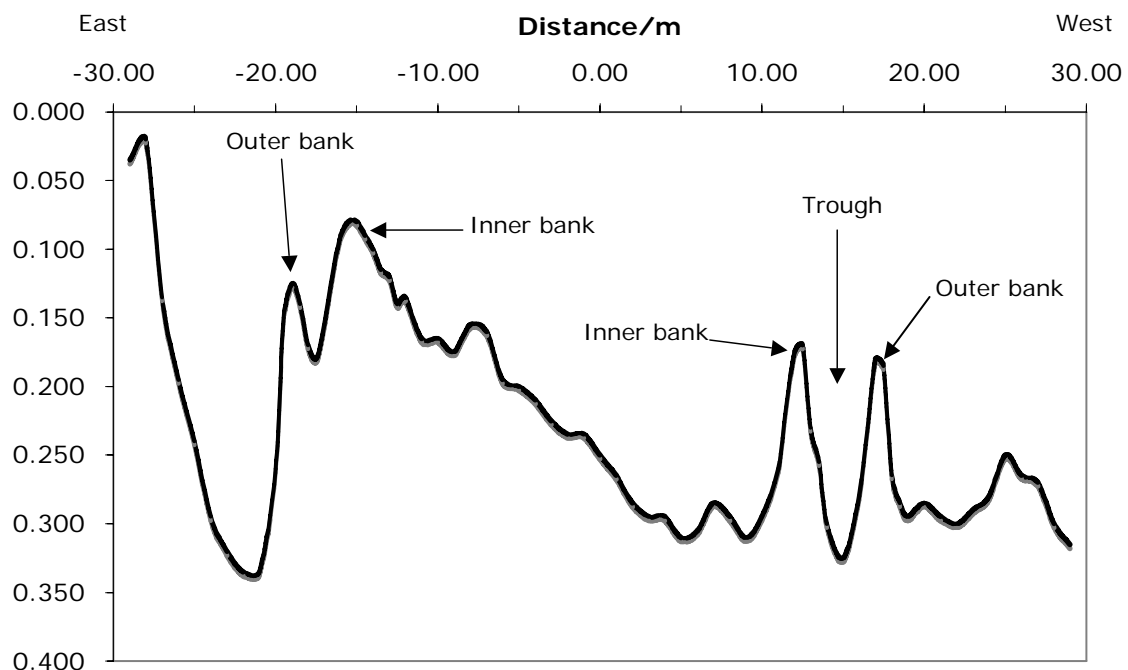


Fig. 9 Section across Site B from South to North

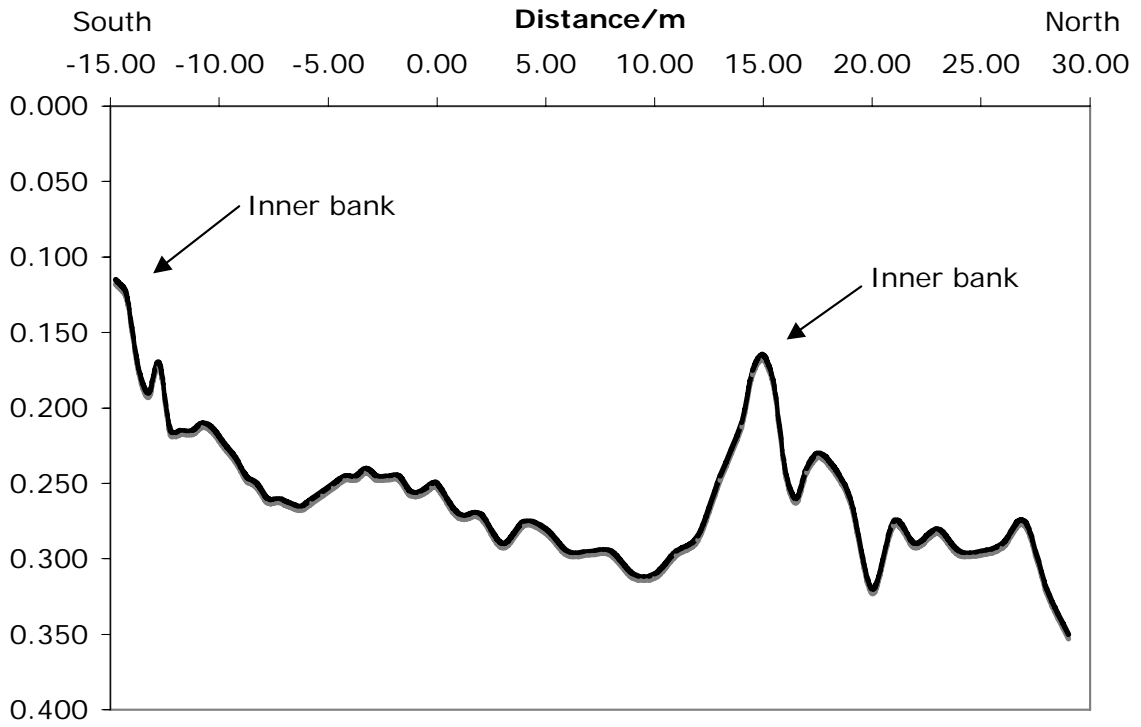


Fig. 10 Transect across Site B from South-East to North-West

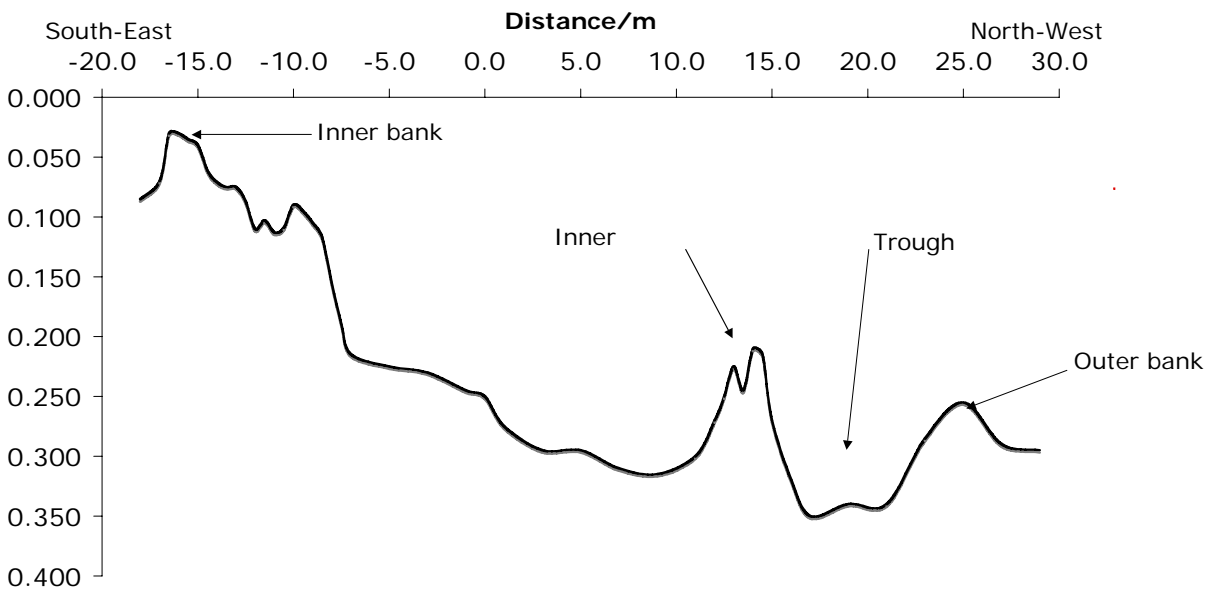


Fig. 11 Section across Site B from South-West to North-East

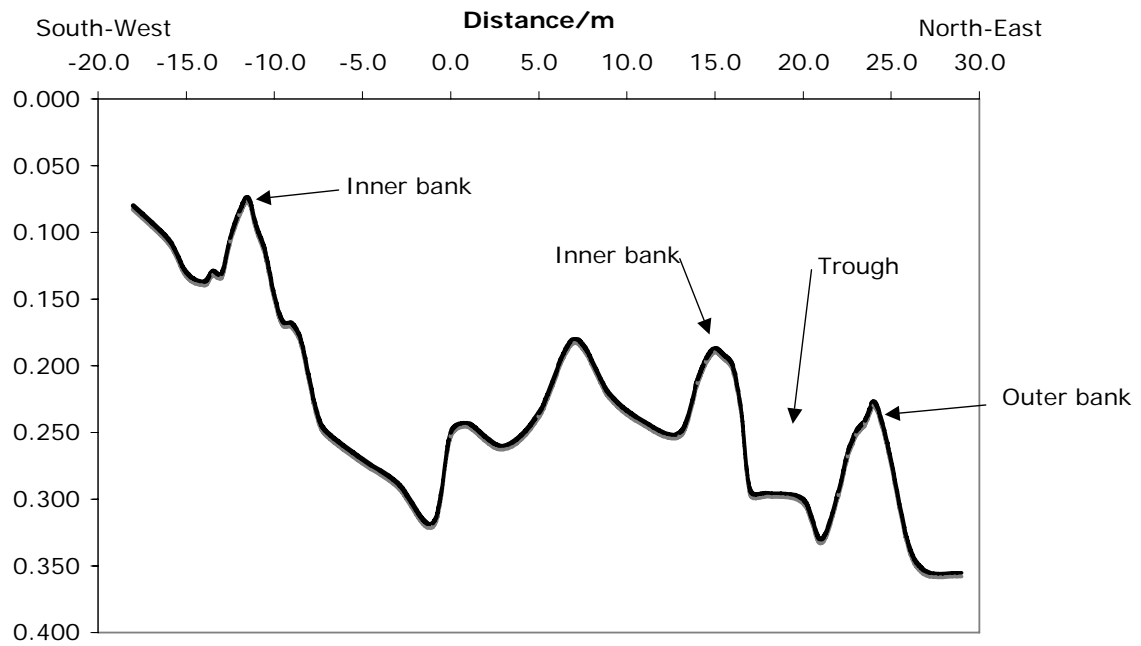
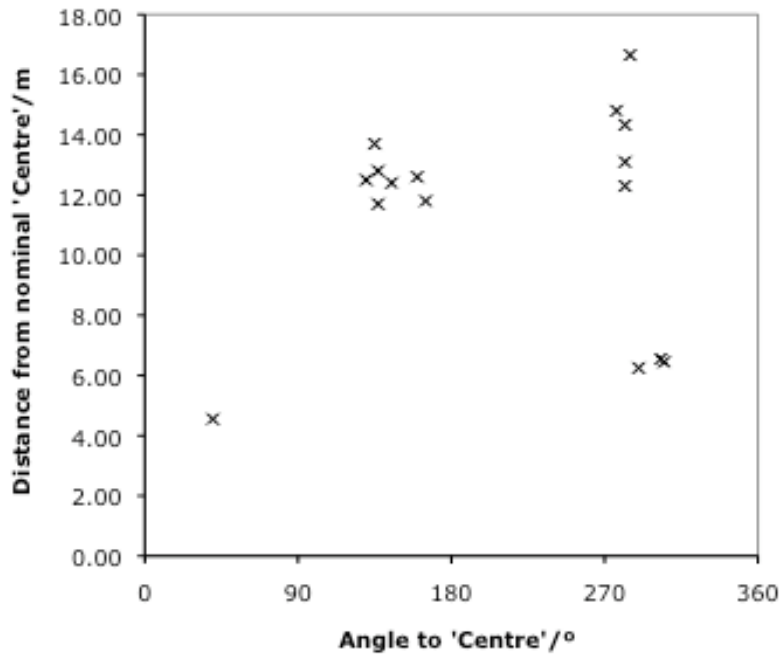


Figure 12 The region where the eastern outer bank joins the inner bank. Scale: 1.0m

Post hole distribution

There are a number of circular hollows in the sand in the central area of Site B. Many are about 0.1m deep and about 0.3m in diameter. Their distribution is shown in Figure 13. Although not all the holes may have been identified, three clusters are apparent. One group lie on a radial line just inside the inner bank to the East (see Fig. 6). The location of the holes will be plotted on a plan of the site once a more thorough survey has been done, hopefully in August, 2010.

Fig. 13 Scatter Graph of Possible Post Holes



Interpretation

Site B was definitely man-made, are considered to have been fish traps by Alex Hale, and Jack Stephenson (both RCAHMS, pers. comm.) If this were the case then the inner bank may have supported wicker hurdles or net walls. Dawson (2004) and Hale (2005) indicate their use in several types of fish trap. The holes for posts for their support may have disappeared with the erosion of the upper part of the bank. Stones were used in many marine fish traps to stabilise wooden posts, but their use is not evident at this site. It is possible that sand fulfilled this function. The outer banks may have supported hurdles or nets to create channels to funnel fish into the inner area. Whatever, it is clear that a more complete survey is necessary to discover the spatial relationships of all the underwater features.

It seems an unlikely area to build a fish trap, especially as the southern shore of Loch Shiel, adjacent to Claish Moss, is only accessible by boat and there must surely be more accessible shores for the construction of a trap and much closer to known communities. The River Shiel, four kilometres to the west, would have been a much more likely location for fish traps. The water on the shelf is very shallow, sometimes it is only 0.5m deep in summer and this cannot be ideal for trapping fish such as salmon and brown and sea trout. Circular fish traps are known (Alex Hale, pers. comm.) but seem to be rarely referred to in relevant research papers. Hooper (2001) excavated an intertidal circular feature that may be a fish trap high up the beach at Ardersier, near Inverness. However, a firm conclusion was not reached about the function.

A major point is the age of the fish trap and it is pertinent to ask whether it was made when Loch Shiel was marine, some two thousand or more years ago, or much more recently in freshwater? If it had been created in an intertidal environment, then the banks of sand would have been subject to erosion by tidal flow and might not have survived as they now found.

A possible alternative explanation for Site B should be mentioned though there is no evidence for it at the moment. It is known that there was military activity in the area during the war. Inverailort House was a special training centre and SOE were based at Arisaig House to the north (Wikipedia). However, the training of agents meant that they were as elusive as possible and thus their creation of Sites B and C seems unlikely.

The strip of sand south from Rubha Cumhann (Site A) might have been left after sand extraction for construction from the 'bays' to the east and west. When this might have occurred is not currently known. Richard Tipping (Stirling Univ. pers. comm.) suggests it might be part of a bird's foot delta extending into the loch.

Suggested Further Research

Site A

A sonar depth survey of the area should be done. The water is too deep to either side of the strip of submerged sand to use surveying equipment that is suitable for terrestrial surveys.

Site B

The area should be fully surveyed using equipment such as a plane table with a surveying staff (English Heritage, 2002) at the centre of the site. The accurate positions and profiles of any features could be accurately plotted. These would include the position and dimensions of all the possible post holes. Some of them could be excavated to see if any wood remains preserved below the sand. Any timber found could be C¹⁴ dated. Local enquiries should be made about the history of fishing and sand extraction on Loch Shiel.

References

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