

Clanranald's inland Uist waterway: fact or fiction?

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ABSTRACT

The well-known local tradition that the lochs of South Uist and Benbecula were navigable prior to their drainage is reviewed using a combination of published sources, place-names, modern Digital Terrain Models (DTMs) and aerial imagery. Reconstructions of lochs to likely pre-drainage surface levels via DTMs identified extensive navigable loch systems in western Benbecula and in four main loch basins in South Uist, one of which stretched 40% of the length of the island. Connections between the South Uist basins were also examined and it was concluded that while such past connections are theoretically possible, such evidence as is available suggests that they were not linked. Though the possibility of a continuous navigable link between Baghasdal in South Uist and the north end of Benbecula cannot be ruled out, the evidence suggests that it is unlikely to have existed, though several portages would be all that was required to establish a functional transport link from Baghasdal to Balivanich via the loch networks. The conclusions inform a fundamental knowledge gap in the medieval history of Uist that has important implications for studies of past land management, as well as the impact of future climate change.

INTRODUCTION

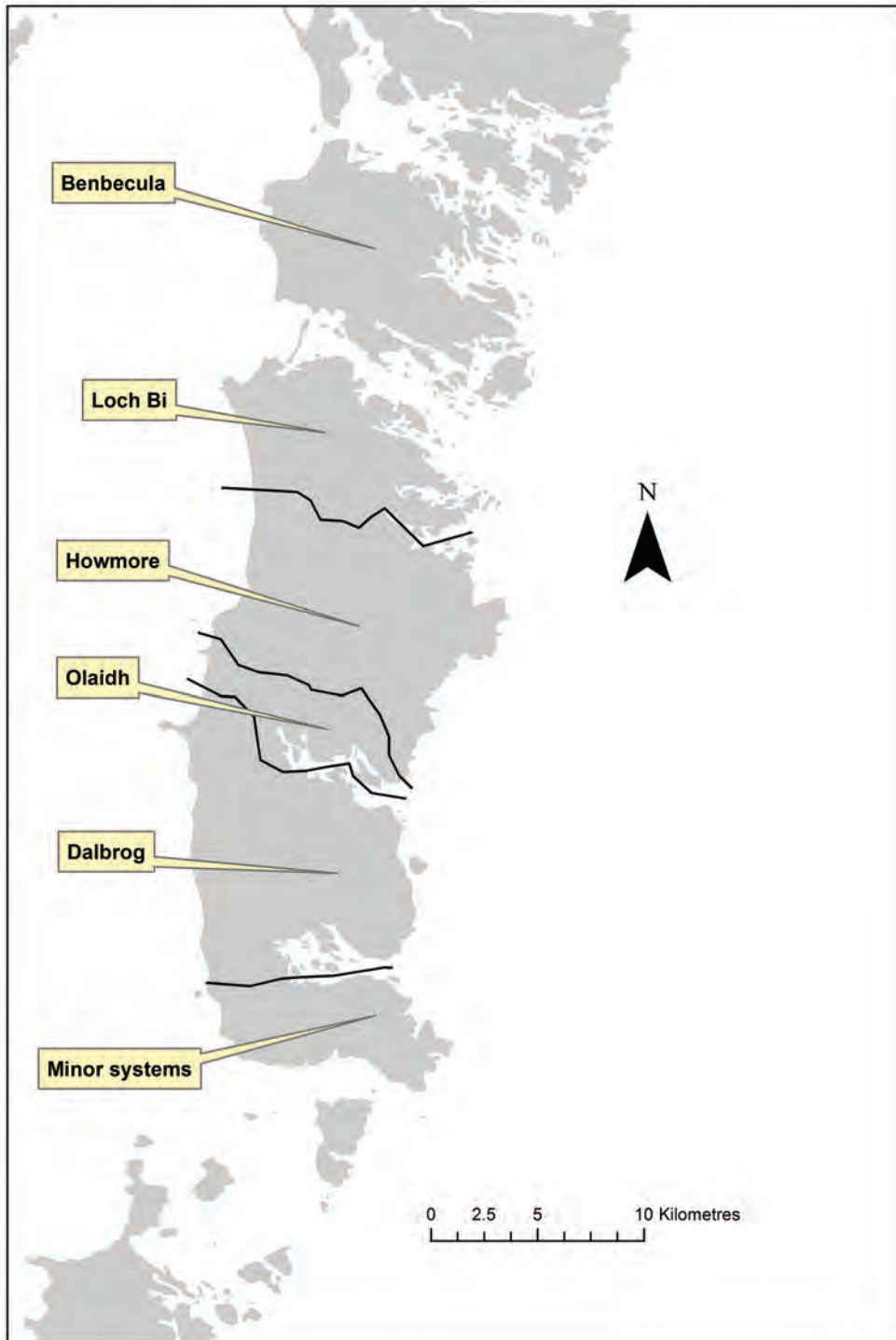
Within Uist, in the southern half of the Outer Hebrides, there is a persistent local tradition, echoed in the literature (eg Ritchie 1966; Fleming & Woolf 1992; Parker Pearson et al 2004; Raven 2005; Parker Pearson 2012) of a network of inland lochs within South Uist and Benbecula, sufficiently linked as to permit inland navigation. Such a network would have been vital for the carriage of crops, fuel (peat) and building materials prior to the transition to the establishment of roads and the provision of carts, believed to have taken place around 1800 (Angus 2018a). Though the tradition invariably refers to Clanranald, the first settlers in Uist clearly had boats, and it is likely that these people and their successors, including the Vikings, used boats on the inland lochs. This work explores the connectivity of the loch systems with respect to navigability.

This study addresses research gaps identified by the Scottish Archaeological Research

Framework (ScARF) in its Marine & Maritime panel under the headings Inland Waters – Canals and Navigations. The ScARF recommendations include ‘placing canals within their landscape context’, ‘understanding and study of relict waterways’ and ‘exploration of the interface between waterways, the coast, and non-canalised navigations’ (ScARF 2012). Some of these objectives are met here by providing evidence of the probable existence of navigable inland waterways in Benbecula and South Uist, in the context of history, landscape and coast.

There are two high-resolution Digital Terrain Models (DTMs): IFSAR, which is available for the whole of Scotland but has lower definition (5m grid size, $\pm 12.5\text{m}$ horizontal, $\pm 1\text{m}$ vertical); and LiDAR that has better resolution (1m grid size, $\pm 0.4\text{m}$ horizontal, $\pm 0.15\text{m}$ vertical) but is available for only parts of Uist. Coverage of Benbecula is confined to the south-west of the island and LiDAR does not record elevations of lochs. These DTMs allow the reconstruction of former lochs and channels to any desired flood

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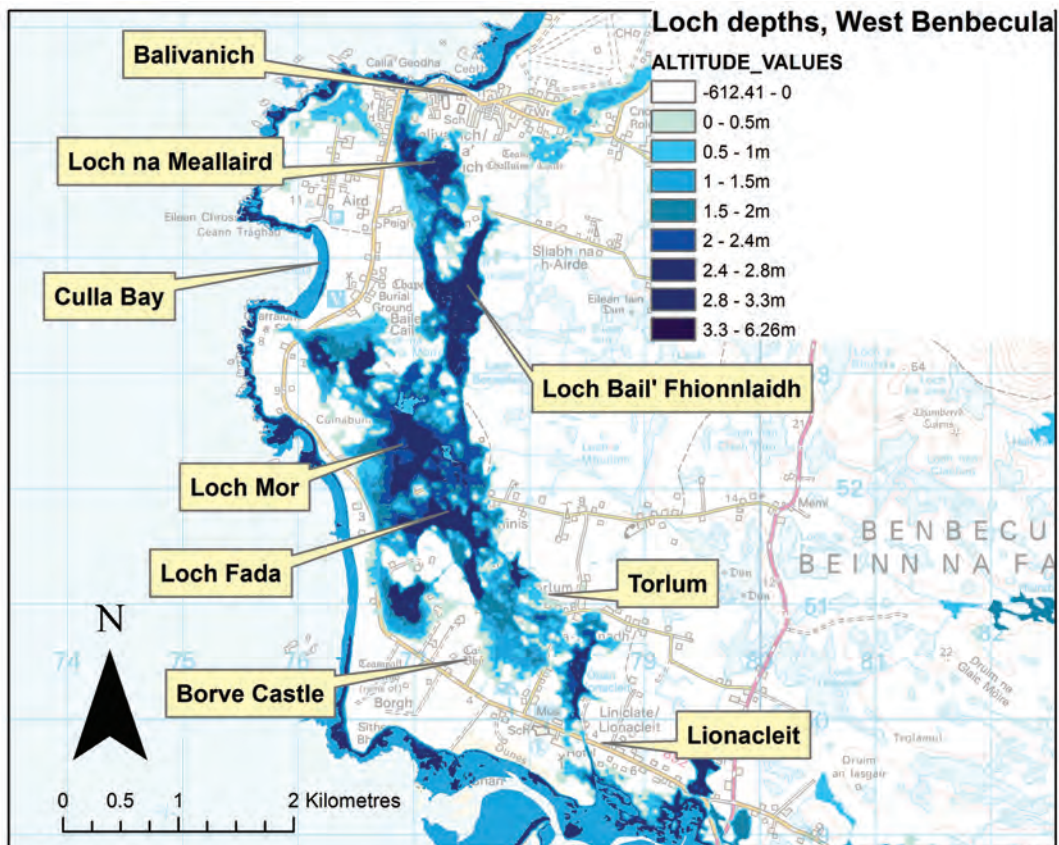


ILLUS 1 Locations of main loch/river basins in main study area of South Uist and Benbecula. (© Crown copyright and database rights 2020 OS 100017908)

altitude, permitting speculation as to routes and the existence of constructed links. The models can then be related to other evidence, such as place-names, historical maps and the distribution of built terrestrial structures (Angus 2017a; 2018a; 2018b; 2019).

The first map of Uist that is more than a rough sketch is that of Blaeu (1654). It is believed to have been drawn from maps made by Timothy Pont, who visited the islands around 1595 (Pont 1583–96; Parker Pearson 2012). The lochs shown on the Blaeu maps have been related to modern locations by Raven (2012) and Gill Maclean, a historical geographer who lived at Howmore on South Uist, and who believed that the detail given on the Pont/Blaeu maps demonstrated that Pont had travelled by boat on the internal loch network (Fleming & Woolf 1992: 344).

There are four main loch/river basins in South Uist, with a complex of minor basins at the south end of South Uist (Angus 2017a; 2018b: illus 1). A single basin occupies the west side of Benbecula (Angus 2019) while the North Uist lochs have experienced less drainage and are less connected. Angus (2018b) justified the selection of a flood altitude of 3.3m OD (above Ordnance Datum) on the basis of known former loch levels (Ritchie 1966), the level of Mean High Water Spring (MHWS) tides in Uist of 2.03m OD and the level of the marine flood of 10–11 January 2005, which reached 4.6m OD (Angus & Rennie 2014). There are no known remains in Uist of the vessels used on these inland waters (Stephanie Blankshein, pers comm), so speculation is informed by boat remains from elsewhere.



ILLUS 2 Reconstructed bathymetry of lochs in western Benbecula with surface level of 3.3m OD. (DTM © Getmapping PLC. Backdrop © Crown copyright and database rights 2020 OS 100017908)

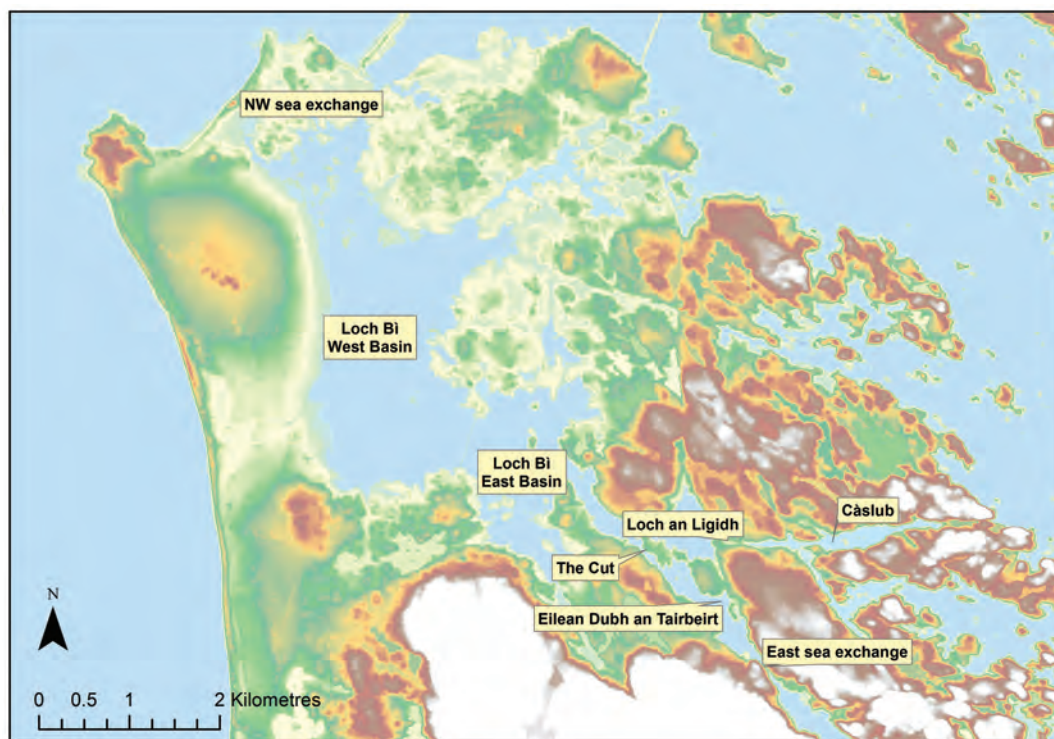
BENBECULA

The Blaeu map is less accurate in respect of Benbecula than it is of South Uist. The first map of the former island that offers a reliable historical source is that of Mackenzie (1775), which shows a clear inland channel in western Benbecula, open at the south and extending almost as far as modern Balivanich on the north coast. Significantly, the north end of the channel is closed – a feature common to subsequent maps. Flooding of the DTM to 3.3m OD provides a navigable route from Lionacleit to Balivanich (Illus 2), which is described in detail by Angus (2019).

LOCH BÌ, SOUTH UIST

Loch Bì (Loch Bee) is unique in the British Isles in being a ‘bifurcated loch’, with outflows on

two coasts. The two connections, to the Atlantic in the north-west and to the Minch in the east, allow saline inflow that transforms the loch into a saline lagoon (Angus 2017b). The north-west connection is natural but has been valved intermittently for many years. The eastern sea exchange, also valved, is constructed and it is likely that the easternmost basin of the modern loch (containing Eilean Dubh an Tairbeirt) was not connected to the rest of the system to the west as the link between this and the east basin of Loch Bì is known today as ‘the cut’ (Illus 3) but probably from the Gaelic *gut* (channel). As well as Eilean Dubh an Tairbeirt, the eastern sea exchange features Ceann an Tairbeirt. These are the only instances of the name ‘Tarbert’ in South Uist, suggesting that despite the absence of a navigable link the route was used for boat-based travel (with cargo portages). The term *Tarbert* is Gaelic rather than Norse and denotes a ‘carrying place’ or ‘portage’ rather than a location where



ILLUS 3 Loch Bì showing topographic context and main features. (DTM © Getmapping PLC. © Crown copyright and database rights 2020 OS 100017908)

boats were hauled (Watson 1926; Curtis 2011). The possibility of a second eastern connection is suggested by the name Loch an Ligidh (loch of the drain or canal) at NGR: NF 809 416 (Illus 3 and 4), which lies on a low watershed between an unnamed north-east basin of the natural Loch Bì and Càslub, a tidal inlet on the Minch coast (Illus 3). Ground investigation revealed only very small channels, with topography suggesting that a navigable link at this location was unlikely, though the possibility of an excavated channel immediately to the west of Càslub could not be ruled out. There was also a small stone structure at the nearest point of Loch Bì, which could conceivably have been used as a berth in any portage. The original loch outlines and connections in the vicinity of 'the cut' are unknown, as is the date of its excavation. However, collectively the evidence points to an extensive natural loch connected to the west coast at a strategic location near to Benbecula, navigable for 6.6km eastwards and with probable connections to the Minch coast via portages.

HOWMORE SYSTEM

The elevations of the lochs in this catchment are marginally higher than the other main South Uist systems but this does not necessarily mean the system could not connect to the sea. The estuary provides a rare break in the dune cordon that separates the machair from the Atlantic seaboard and the sea flows into lochs adjacent to the estuary, transforming them into saline lagoons.

To the south, the estuary connects to Loch Ròdhag and onwards to Loch Fada (Illus 5). The southernmost loch in the system is Loch Altabrug, but the modern connection between

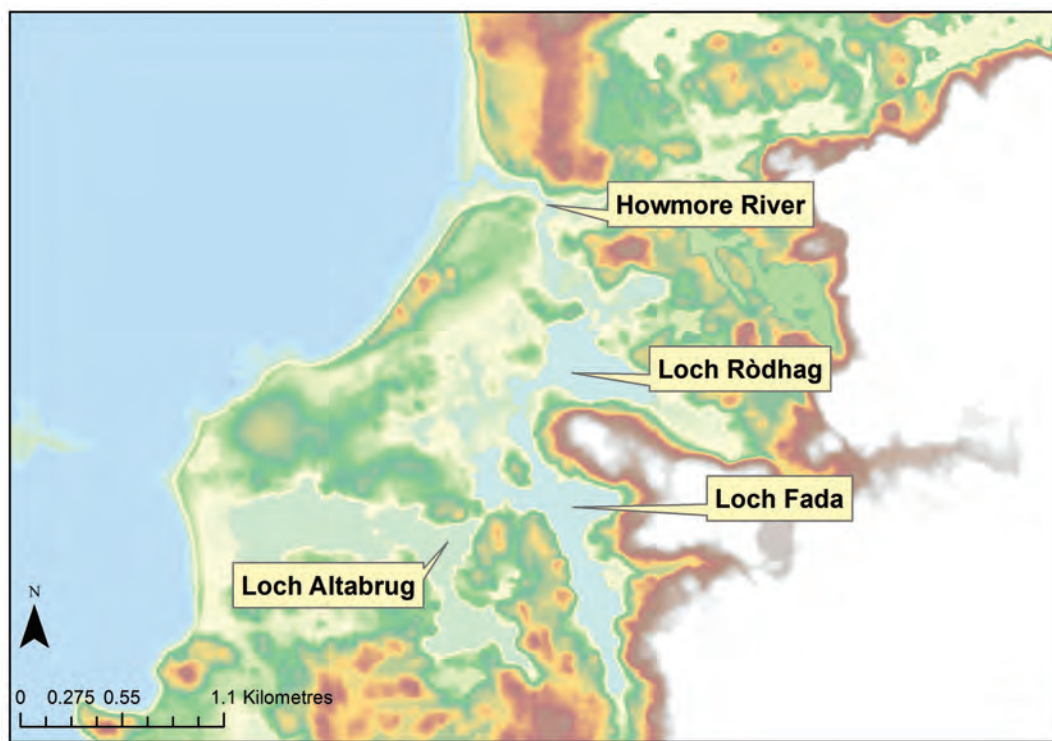
Loch Fada and Loch Altabrug is stone-lined and clearly too narrow to have been navigable (Illus 6). With a separation distance of only 90m it seems highly unlikely that such a link did not exist. The two possibilities are that the modern channel has been reconstructed to narrow its



ILLUS 4 View from Loch an Ligidh (left) towards Loch Bì. Note difference in loch levels and suggestion of a wider natural or artificial channel between the two. Loch an Ligidh has very minor outflows towards both Loch Bì and Càslub. (© Stewart Angus)

cross-section, or, as is suggested in some aerial imagery, there is a different, sinuous channel to the east of the current route, which at some stage has been filled in (Illus 6).

The northern links are less easily discerned. Leacach How, the large drain connecting the Howmore estuary to Loch an Taigh-sgoile, is sinuous on Bald's map of 1805 but subsequent maps show a straight section on part of this route. The loch to the south of Loch an Taigh-sgoile is called Loch a' Phuirt-ruaidh denoting a 'port' name 1.9km from the sea. The DTM provides no clear route between Loch an Taigh-sgoile and the extensive Loch Druidibeg, but Loch an Eilein contains an island on which Caisteal Bheagram was located. Bald's map of 1805 shows Loch an Taigh-sgoile and Loch Eilean a' Ghille-ruaidh as a single Loch Rigarry. Raven (2005: 350) describes a possible navigable route



ILLUS 5 Area south of Howmore estuary, showing IFSAR DTM. Low-lying areas are evident connecting Loch Ròdhag, Loch Fada and on to Loch Altabrug (but see text). (DTM © Getmapping PLC)



ILLUS 6 Modern connection between Loch Altabrug (bottom left) and Loch Fada (top). It is possible that this was a canal rather than a drain, but the width (1.8–2 m) suggests the latter. The dark green areas denote wetter land, and it is possible that these represent remnants of a former channel, though a viable route has yet to be identified. (© Getmapping PLC)

between Caisteal Bheagram and Dùn Raghail at the west end of Loch Druidibeag. Two place-names on this route are significant in this context: *Fèith a' Choite* which means 'stream of the coit' (a coit is a small boat – see below), while the small *Loch Bun an Ligidh* means 'loch at the mouth of the canal' or 'loch at the mouth of the drain'. However, this route is not the shortest route between Loch Druidibeag and Loch an Eilein, lying some way to the north of the shortest connection. Aerial photography and the DTM show possible connections between Lochs Stadhlaigearraidh, Druidibeag and Groigearraidh but it is difficult to be certain (Illus 7).

OLAIDH LOCHS

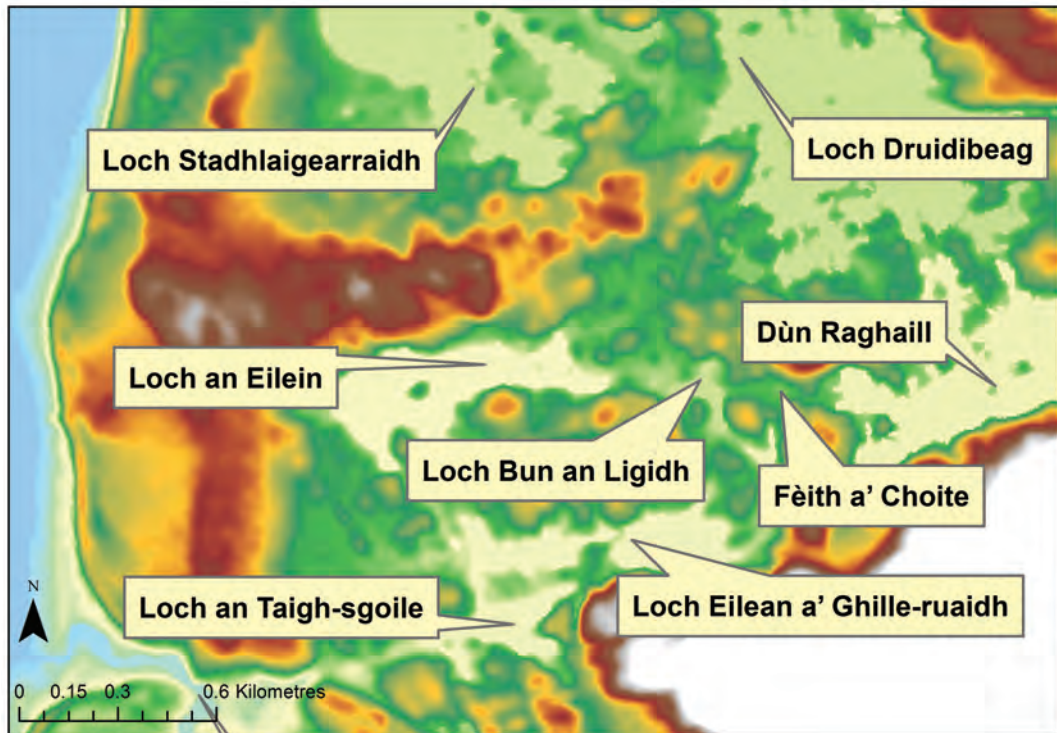
Angus (2018a) has identified constructed channels that link Loch Aineort, a sea loch on the Minch coast, to Loch Olaidh an Iar on the west

coast involving the excavation of at least 1km of canal. Most sections are stone-lined and around 3.7m wide. The route is believed to have been established to allow the use of building materials from the east coast of South Uist and the western seaboard of Scotland in the construction of Caisteal Ormacleit in the early 18th century. This network represents the clearest evidence for canal construction in the Outer Hebrides.

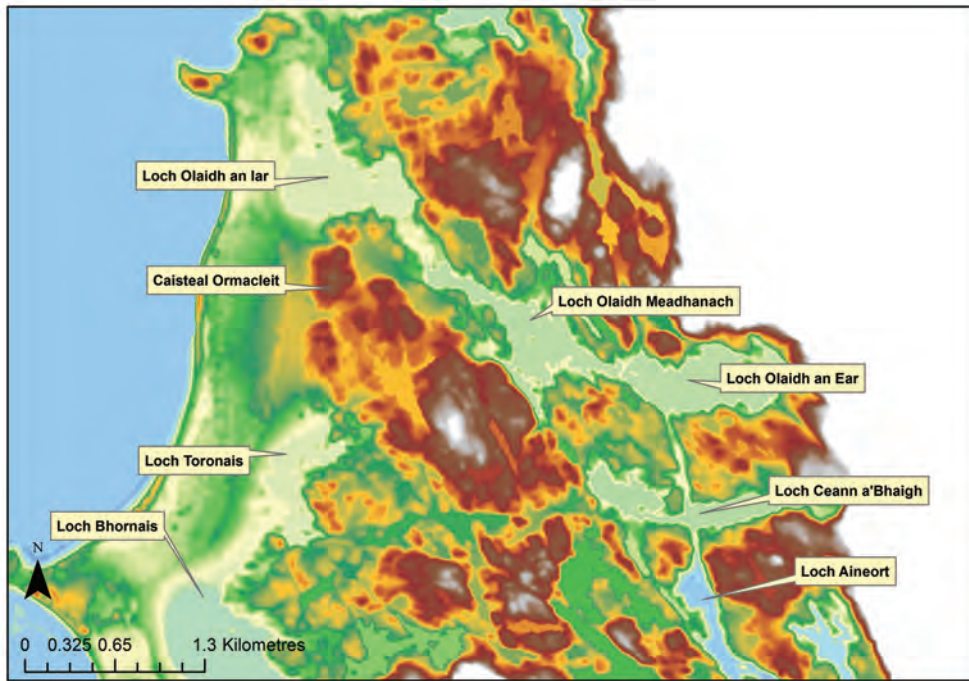
LOCH DALBROG

This loch network has changed more than any of the others and has the advantage of support from written sources:

Loch Dalbrog in the South part of the Island, has been lately drained by Mr McDonnel of Boysdale, though immediately adjacent to the Sea, and its Bed 6 feet below high Water Mark. This is the first experiment that has been made in the Island, and by



ILLUS 7 DTM showing north access from Howmore. (© Getmapping PLC)



ILLUS 8 Ramped DTM context for lochs in Olaidh system, with Minch (Loch Aineort) bottom right and North end of [separate] Dalbrog system bottom left. (© Getmapping PLC)



ILLUS 9 Canal section south of Loch Olaidh an Ear, looking south. (© Stewart Angus)

draining this Lake, about 2 square Miles have been gained, which is now the richest Land in Wist, and indeed as rich as any Land Whatever (Walker, as cited by Mackay (1980: 74)).

But as the water which flowed from the hills towards the west, when it came to the bottom of the declivity, would be interrupted by the bank of sand thrown up by the sea, it has accumulated into a chain of shallow lakes, till it rose to such a height as to force a passage to the sea, through some of the weakest parts of the bank. In conformity with this hypothesis, it is found, that at present the west coast of the island of South Uist, which I had a particular opportunity of examining, (and I was told the other islands in that chain were exactly in the same circumstances), consists of a plain of shell-sand of unequal breadth, from about a quarter of a mile to half a mile, or perhaps three quarters, within which is a range of shallow fresh-water lochs that run along the whole length of the island, the surface of which is so little elevated above the level of the sea, that at high spring-tides the sea flows, into these lochs, so as to render the water at times brackish [brackish] (Anderson 1785: 138).

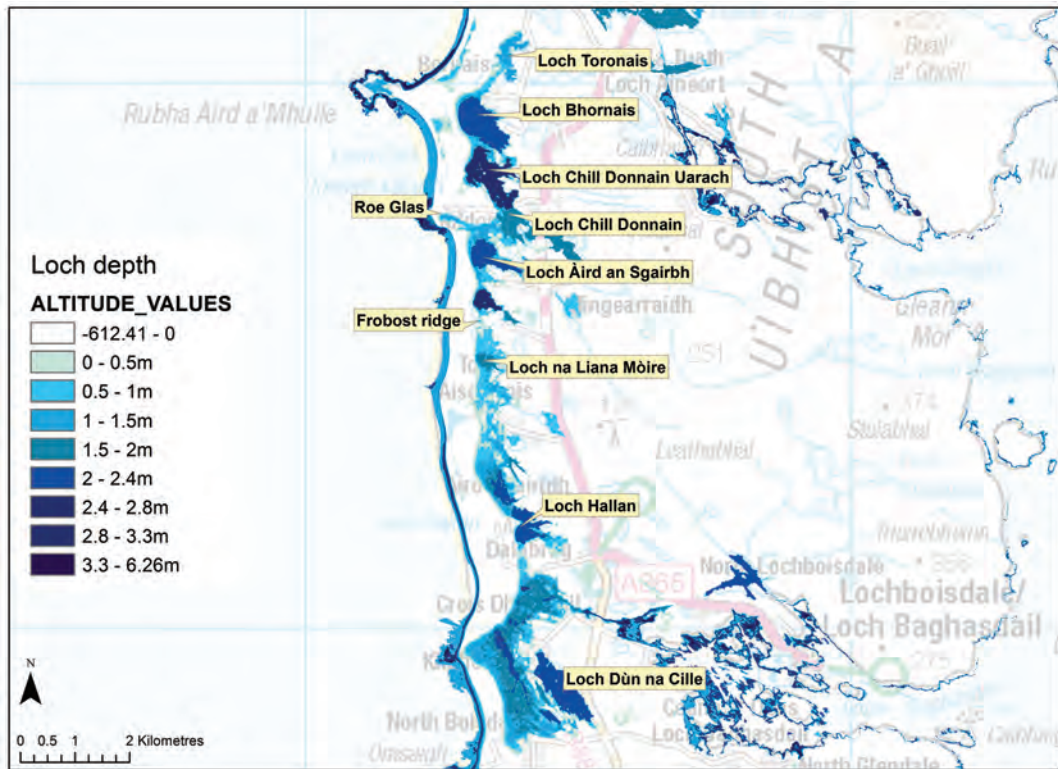
Three such harbours as are now described, are found in South Uist, viz Loch-Boisdale, Loch-Eynort, and Loch-Skiport. The first, where I happened to be windbound for several days, went so deep into the land as to approach within a very small distance of the chain of fresh-water lochs. It had not originally, however, any communication with these lochs; but Mr Macdonald of Boisdale, having observed that the outlet from these fresh water lochs, which was formerly to the west, was frequently choaked up by the sand, thought it would be for his advantage to open an outlet to the east sea, through this harbour. This he did by opening a ditch into it, of five or six feet deep; by which operation, he not only lowered the surface of the water in these lochs so much as to gain about nine hundred acres of land, but also established a communication by water, in boats, from the east sea, to almost every single farm on the island. These fresh-water lochs are nearer either of the other two harbours than they are to Loch-Boisdale. Indeed they come within about thirty yards of the head of Loch Skipport, and are so near as to be marked in Mr Mackenzie's charts plate, as being entirely joined (Anderson 1785: 139).

The Blaeu map of South Uist clearly shows a chain of lochs (as described by Anderson) from

Cille Pheadair to a loch immediately south of 'Loch Ormakled' (assumed to be Loch Olaidh an Iar but possibly Loch na Duchasaich) and strongly resembling the reconstruction (Illus 10). Angus (2018b) considered it possible that the northern limit of the Dalbrog network had been extended by the construction of a canal between Loch Bhornais and Loch Toronais, taking the Dalbrog network to within 1,520m of Loch Olaidh an Iar (Illus 8, 10).

The South Uist lowlands have been surveyed in detail by archaeologists (Parker Pearson 2012). Angus (2018b) used archaeological datasets in conjunction with the reconstructed Loch Dalbrog network and identified only duns and crannogs (ie structures that would be expected in lochs) within the loch outline. The absence of terrestrial built structures within the lochs supports the historical existence of an extensive loch network in the southern sector of South Uist.

Angus (2018b) calculated that with a surface level of 3.3m OD, the connected Loch Dalbrog lochs would have had a collective surface area of 956.7ha, whereas the current lochs in the wider catchment have an aggregate surface area of only 283ha. The chain of lochs extended a total distance of 13.2km, accounting for 40% of the length of South Uist. Angus (2018b) reconstructed the loch network and mapped water depth at a flood level of 3.3m OD and reviewed the viability of the shallow areas between the deeper basins in respect of navigability. The shallowest section was the 'Frobost ridge' where the depth was only 0.2m at a flood level of 3.3m OD. This ridge separates the wider Dalbrog catchment into two sub-catchments with the northern section discharging to the sea at the Roe Glas on the west coast, and the southern section discharging into the Minch, at the Strom Dearg (Stòras Uibhist 2006). It is possible that the shallower sections were used only at flood levels even higher than 3.3m OD, either when rainfall had been very high or when the then single outflow at the Roe Glas was 'choaked', as described by Anderson (1785). Anderson goes on to describe how Clanranald's brother Boisdale constructed a canal from Loch Dalbrog to the east coast to establish communication by boat 'to the east sea' and thence to the Clanranald lands on



ILLUS 10 Bathymetry of Loch Dalbrog basin at surface level of 3.3 m OD. (DTM © Getmapping PLC. Backdrop © Crown copyright 2020 OS 100017908)

the mainland and in Skye, connecting to ‘almost every single farm on the island’, which is possibly an exaggeration. This had the inadvertent impact of draining the inland lochs, thereby releasing almost 500ha of former loch bed for cultivation. This major agricultural benefit coincided with the introduction of roads and carts, so that there was a net benefit to Uist. The widespread drainage programme these results stimulated was probably the greatest human impact on the natural heritage of the Outer Hebrides since the Neolithic. Thus the construction of a major canal was indirectly responsible for an intensive programme of loch drainage.

NORTH UIST

There is no evidence of canals in North Uist and the only significant drainage comparable with that in Benbecula and South Uist is in the vicinity

of Paible. However, it is known that boats used the existing lochs, such as Loch Obasarigh, for navigation until fairly recently and place-names suggest extensive use of lochs and portages in the east.

Large numbers of lochs in North Uist are connected to the sea and as a result form saline lagoons, and many of these could have been accessed from the sea by boat. Of these, the most extensive is Loch Obasarigh, which can be accessed from Loch Euphort via a short channel, and stretches almost all the way to the next sea loch at Oban nam Muca-mara. It seems unlikely that there was ever access to the sea at the south end, as the ridges are too high. This does not rule out a portage.

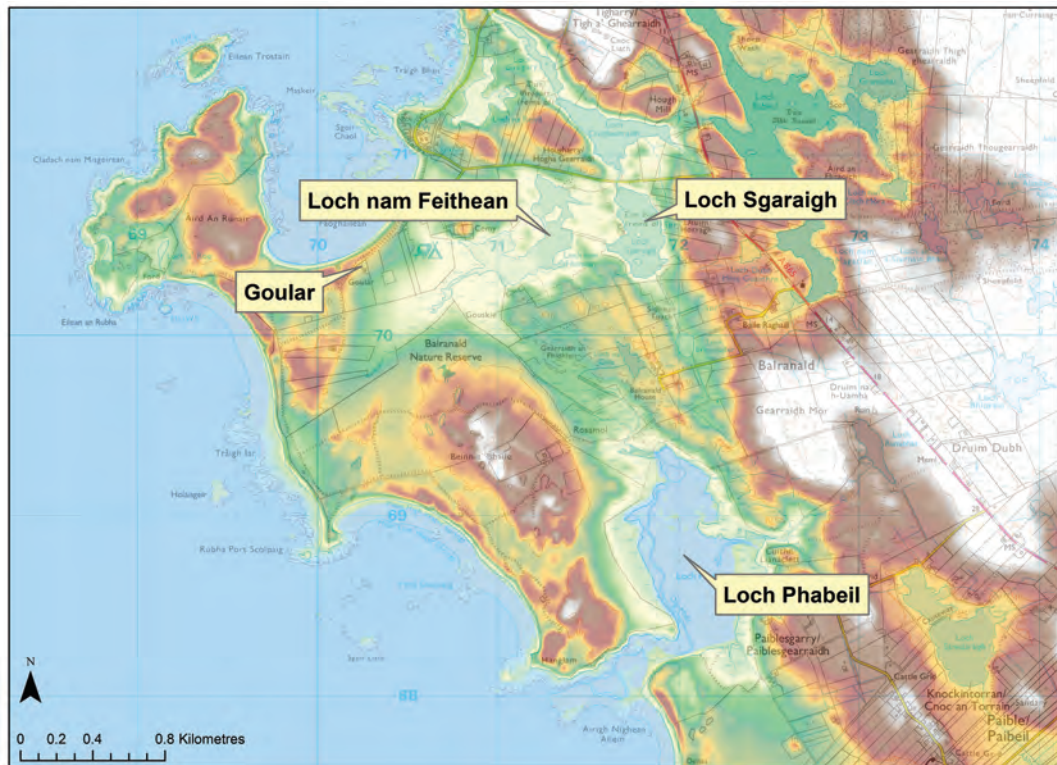
The Balranald basin is possibly the largest drained area in North Uist. The DTM shows what appears to be an old loch bed linking Loch Croghearraidh, Loch Sgairigh and Loch nam

Fèithean, then extending westwards at Goular. It is also possible that this basin incorporated Loch na Cille and what is now Loch Phabeil, and that this single loch was reduced to four smaller lochs as well as a sea inlet by two separate projects, An Dig Mhòr at Loch Phabeil and the drain at Tigh a' Ghearraidh.

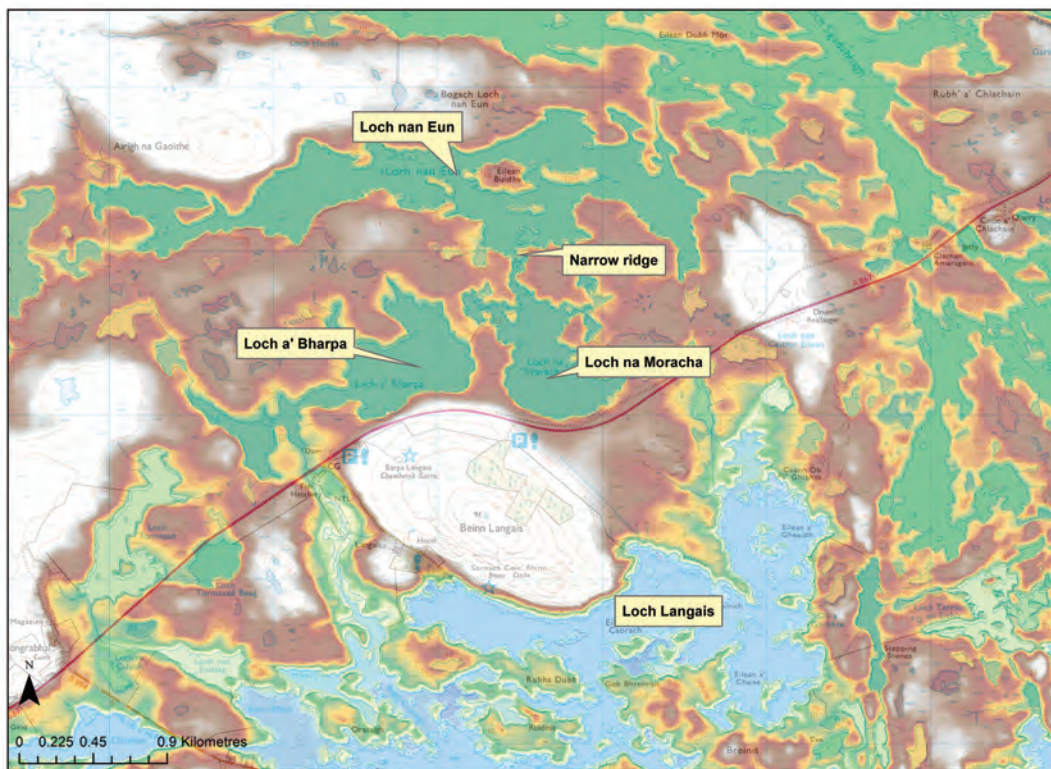
It is clear from the DTM (Illus 11) that the loch complex west of Paible was larger in the past and has been drained. Fergusson (1984: 247) describes flooding caused by the blocking of the outflow from Loch Phabeil by a sand bar, and the subsequent construction of the Dig Mhòr (big ditch) with stone-lined channels, in the early 15th century. Beveridge (1911: 188) gives a date 'before 1793' for the construction of the Dig Mhòr but his text allows for the possibility that he meant any period before 1793 as opposed to 'just before' 1793. The two texts are thus theoretically compatible but Fergusson's is regarded by some

as a highly questionable source (eg Blankenhorn 1979) as it confuses Loch Phabeil with Loch Bì at one point. Loch nam Fèithean is reputed to have a stone with a mooring ring associated with the larger loch but this has never been located (Jamie Boyle, pers comm).

South of the main east-to-west road, the topography does not allow for a direct connection from Loch Sgadabhagh to Loch Euphort via Oban Spanish, but here it is interesting to note that the loch in between Oban Spanish and the south-west arm of Loch Sgadabhagh is called Loch Tarruinn an Eithir or 'loch of the boat-haul' (Cheape 1999). This strongly suggests that not only was the route from Loch Euphort to Loch Sgadabhagh used for portage, but the boat itself was transported, not just its cargo. The haul may have been just between this loch and Oban Spanish but an onward haul to the north-east and to Loch Sgadabhagh could have been of



ILLUS 11 Ramped IFSAR DTM on OS backdrop showing extent of old loch basin at Balranald, North Uist. (DTM © Getmapping PLC and OS backdrop © Crown copyright 2020 OS 100017908)



ILLUS 13 Ramped IFSAR DTM and OS backdrop of Loch a' Bharpa to Loch nan Eun area. (DTM © Getmapping PLC. © Crown copyright 2020 OS 100017908)

fall in water level yielded 42 Scots acres [53 Imperial acres or 21.4ha] that was judged of sufficient quality to grow barley.

Macleod suggested (but did not directly state) that the drain was fitted with a flood gate, consisting of a hinged wooden lid on a box that functioned as a valve, allowing discharge of fresh water while preventing ingress of sea water. Beveridge (1911) states that:

the loch is very shallow and evidently much reduced in both depth and area as compared with its condition at the period when the fort was built, having been partially drained away in 1829 through Allt a' Mhuilinn which runs from its west end into the sea at Port na Caipe.

The width of the depression in which the drain is situated is 56m. Beveridge's date must be slightly out as the Macleod paper of 1831 was submitted in 1828.

Bàgh na Tarruing (NGR: NF 828 639), the 'bay of carrying', is likely to have been used in connection with a portage of 290m from Loch Eport to Oban a' Chlachain, in turn (at that time) giving direct boat access to the Atlantic coast at high tide.

WERE THE SOUTH UIST SYSTEMS CONNECTED?

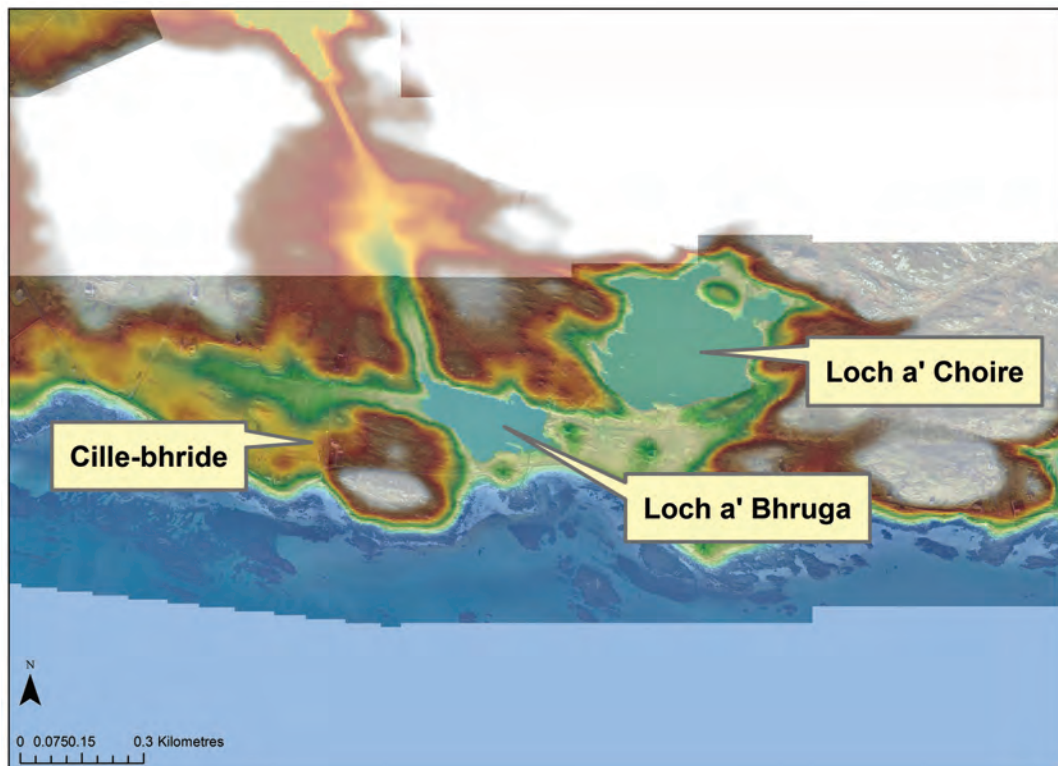
Each of the four main systems allowed communication by boat over significant distances but the efficiency of boat-based transport would have been transformed by links between the four loch networks. There are no obvious routes identifiable on either the DTMs or the aerial imagery, and the most likely candidates would be routes that utilised the linear network of seasonal lochs just inland of the dune ridge – a network

that still develops every winter as the water table rises (Angus 2001). Cargo that required transfer from one loch network to another would thus have been carried by boat only in winter, when water levels were at their maximum, replaced by portages at other times. If such routes existed, evidence has been obscured by their location just inland from the most dynamic part of the coastline – the mobile dune ridge; hundreds of years of sediment dynamism have obscured all signs of their existence. However, this is not a matter of idle conjecture: the vulnerability of the machair water table to saline contamination has previously been highlighted by Angus (2018b). The possibility that the loch basins are connected via their subsoil water tables means that saline infiltration of one loch network might well affect its neighbour, and gives rise to the possibility that the coastal lowlands of western South Uist

have one vast, interconnected water table. As the entry of sea water to the Uist interior is likely to increase as a result of Relative Sea Level Rise (Angus 2018b), it is important to ascertain the functional extent of this connectivity.

The presence or absence of a navigable link between Loch Altabrug and Loch Fada is of considerable importance. The distance between the two lochs is short, yet the inability to confirm the existence of such a link imposes uncertainty on the validity of the economic viability and possibly even the very existence of an island-long system. Future investigations may yet identify a former connection between the two that is merely suggested by the aerial imagery (Illus 6) or establish that the current drain is a filled-in canal.

Raven (2005) speculated on the possibility of a link from Ormacleit (Loch Olaidh an Iar) to



ILLUS 14 Ramped LiDAR DTM with associated aerial imagery superimposed, showing Loch a' Bhruga and channel leading westwards, where it is blocked by higher ground. A 'blind' channel is also apparent to the north of Loch a' Bhruga. (© SNH for Western Isles Data Partnership)

Howmore. Although there is no clear evidence on the DTM or aerial photography, winter flooding could conceivably provide a route from Loch Olaidh an Iar to Loch Altabrug and onwards to Howmore, assuming that the route from Loch Altabrug to Loch Fada was navigable.

The clarity of the loch outlines on the Blaeu map suggests that there was no onward aquatic connectivity from Loch Toronais (in the Dalbrog system) to the Olaidh lochs at the time. The Olaidh network had a constructed navigable link to the Minch by the early 1700s, yet a new Minch link was built for the Dalbrog network some 40 years later, making it highly unlikely that there was a link between the Dalbrog and Olaidh systems at this time either. Though the possibility of a linked navigation system prior to 1595 (the approximate date of Pont's visit) cannot be ruled out, it seems unlikely that the only practical means of transporting goods and people over long distances in Uist would have been allowed to fall into disrepair.

Tradition suggests that there was an entry from the sea to the extensive Dalbrog network via Loch a' Bhruga on the south coast of South Uist, with vessels passing to the north of Cille-Bhrìde, where the DTM reveals a channel, but a 'blind' one, in that it ends without going anywhere. The Blaeu map and the surviving fragments of Pont's sketches show a single opening in the south coast of South Uist at this point. A stone-lined sea channel was discovered in Loch a' Bhruga by Macdonald and Rennell (2012), who assigned a late 18th-century date to the structure, which provides a very strong case that boats indeed entered Loch a' Bhruga from the sea at one time. However, the strong impression of a viable link westwards and on to the Loch Dalbrog network that is gained on the ground is ruled out by the altitudes revealed by the high-definition LiDAR DTM (Illus 14). On the basis of this evidence, Angus (2017a) ruled out Loch a' Bhruga as a sea entry for Loch Dalbrog. Aerial photography reveals what may be a blocked 'sea gate' to Loch Briste, which lies on the south coast some 2km west of Loch a' Bhruga, but neither Pont nor Blaeu show a gap in the coast at this point. Combining the DTM and imagery with historical context (Boisdale had different land ownership

from the rest of South Uist) diminishes (but does not eliminate) the case for a link between the south coast and Loch Dalbrog, and Angus (2017a) argued that such a link was unlikely.

WHAT TYPE OF VESSELS MIGHT HAVE BEEN INVOLVED?

Macaulay (1996) lists 15 different types of vessel that were in use in the Western Isles, but does not include a *currach* (hide boat); but this is not surprising in a work that addresses a specific range of vessels. Though the *birlinn* is probably the best-known type of historical island vessel, this was essentially a warship with a deep draught that would not have been used for trading. Indeed, Macaulay (1996) stresses that cargo and fighting vessels had distinct designs. It is likely that the trading vessels used on the internal waters of South Uist and Benbecula were shallow-draughted but allowed significant amounts of freight to be carried; when the water became too shallow to sail normally (powered by sails or oars) they could be dragged by the crew or ponies using ropes. It is also likely that more ambitious internal voyages involving heavier freight movement took place only in the winter, when water levels would have been higher, especially in respect of the chains of winter lochs that establish behind the dune ridge, if these were used at all.

Martin (2014) describes the remains of a boat from Loch na h-Airde in Skye, a loch linked to the sea by constructed canal in a manner analogous to the Uist canals; such a *bite* or *faering*-type vessel might well have been used on both coastal and internal waters in Uist. This vessel is of Viking age (1080–1150), raising the possibility that at least some aspects of the Uist loch/canal network might be of this period. The oldest canal in Scotland is reputed to be Sir Andrew Wood's Canal at Largo, which was built around 1495 to take the proprietor, a former Scottish admiral, to church by barge (Canmore ID 32840) but the canal at Loch na h-Airde probably predates this. The Uist canals are thus not the earliest in Scotland but predate the age of modern canals, which began in the late 18th century.

Curtis (2011) reported that the *Colmcille*, a modern currach about 13m long with sails and 14 oars, draws only ‘two foot of water’ (0.6m) and so smaller currachs could have been used in very shallow water. It has been suggested that a 32ft (9.8m) coracle with a crew of six or seven could carry a cargo of three tons (Case 1969, as cited in Murray 1973: 119). At a flood level of 3.3m OD, there would only be 0.2m of water at the shallowest point of the Dalbrog system (Frobost ridge, Illus 10) and this section was possibly tackled only at even higher water levels. Alternatively, the boat could have been hauled the short distance involved, with lubrication provided by the shallow water reducing the effort involved. The presence of a boat-haul place-name in North Uist suggests that even dry land was not regarded as a barrier to hauling a boat and so shallows would not have posed an insurmountable barrier.

Rixson (1998: 5) reports that a hide boat (currach) could cost a tenth of its wooden equivalent and, while acknowledging the benefits of such currachs, notes the absence of any evidence of their use in the medieval Hebrides, apart from a single place-name in Barra (An Curachan).

Another type of small boat, the *coit*, is recorded by Alexander Carmichael (as cited by Cheape 1999): one of the medieval Macdonald chiefs in Benbecula had been the subject of a prediction by a ‘banshee’ that he would perish on the causeway to his dun and so he had arranged for a small boat to protect himself. Carmichael used the Gaelic expression *chuireadh a’ choit air doigh* which means ‘had a small boat prepared’. Cheape is careful to stress that though the word ‘coit’ is most usually applied to a logboat it can also be applied to a range of small boat types, and the presence of the place-name Fèith a’ Choit to the west of Loch Druidibeag almost certainly applies to some form of small boat. It is highly likely that sea-going vessels transferred their cargo to crafts more suited to internal waters, though the possibility of some sea-going vessels using the inland lochs cannot be dismissed. O’Sullivan (1998) describes a range of boats used on the internal waterways of Ireland between 1100 and 1534, the smallest

of which was a ‘coite’ or ‘cot’, used to convey people and small cargoes around lakes. The Irish *coite* could be a small dugout boat, a wicker-built coracle or a small planked craft. Angus (2001) refers to the undated tradition that marram grass was used to stabilise sand drift in Uist and that it was transported by boat, the boats involved being referred to as ‘barges’. Edwards (1987) gives numerous examples of English clinker-built barges employed from the 13th century onwards, powered by oars or sails, and it is possible that some of this technology transferred to Uist.

Uist had little tree cover during medieval times (Angus 2001) and Cheape (1999) draws attention to the timber resources of ‘Clanranald’s country’ on the western mainland, which could have provided material for the construction of any logboats, barges or other wooden-hulled vessels for inland navigation. With no boat remains and very little cultural context, we cannot be sure what type of boats were employed. However, it is likely that a range of vessels was employed, with logboats and small currachs used to transport people and larger currachs and barges used for cargo.

CONCLUSION

The evidence strongly suggests that there were internal waterways based on four South Uist systems (with confirmed canals on the Olaidh system) and in western Benbecula. Though navigable connections between the South Uist systems are theoretically feasible using the seasonal lochs behind the dunes, at least with high winter water levels, the assembled evidence suggests that they were probably not linked to each other. Journeys involving more than one of the four major loch networks would thus have involved portage.

Though there are suggestions that the first drainage in Uist was the Dig Mhòr in North Uist, it is likely that had this been effective at that time, more drainage would have followed. Instead, it appears that the first drain was accidentally created, having been built as a canal linking Loch Dalbrog to the Minch, and it is the value of the

agricultural land thus created that stimulated the widespread drainage of the Uist lochs.

ACKNOWLEDGEMENTS

I thank Dòmhnall Uilleam Stiùbhart (UHI, Sabhal Mòr Ostaig) for his generous and helpful comments on a previous version of this paper. Helpful comments were provided during the research for this work by Seonaidh Steele (Stòras Uibhist), Jamie Boyle (RSPB), Peadar Morgan (Bòrd na Gàidhlig) and Stephanie Blankshein (University of Southampton). I am also grateful to my colleagues Tina Ross, Susi Hodgson and David Hodgson for GIS advice, without which my maps would be rather poorer. I also thank two anonymous referees for their feedback.

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