Fishing for Meaning:
Lived Space and early Neolithic of Orkney

Introduction

"Being at the junction of the North Sea and the North Atlantic Ocean ... the sea is a constant, unforgettable presence in the islands."
David Fraser (1983, 224)

The 'unforgettable presence' of the sea is notable by its absence in many accounts of the Neolithic of coastal and island areas within the British Isles. The story as most frequently told is one of terrestrial action; of monumental construction, polished stone technology, pottery and domesticates. When the sea does emerge it is often of a homogenous nature, a resource to be exploited with little significance. This treatment is diametrically opposed to the time spent in deriving meaning from action within the terrestrial landscapes of the Neolithic, within which all manner of subtle nuances and potential references are considered. Yet to people living in coastal areas and small island groups, perceptions of the sea are often anything but homogenous. As such, a myriad of skills, relationships and experiences associated with maritime practice have been marginalised in our reconstructions. This poses a problem when we come to contextualise any action within the Neolithic, maritime or terrestrial, such as monument construction because we have little idea of how these different practices articulate. This paper considers how an integration of maritime and terrestrial data within a 'lived-space' perspective can change our understandings. An approach that challenges stereotypes and explores relationships through the temporal and spatial nature of action is advocated. Attention will first be given to identifying archaeological stereotypes, before outlining what a lived-space perspective entails, and following its application to early Neolithic material from the Knap of Howar on Papa Westray in Orkney.

Stereotypes and Orthodoxy

To understand the stereotypes and orthodoxy that have developed around the Neolithic it is necessary to see it in relation to the preceding Mesolithic, and consider ideas of how the transition between the two may have occurred. It has long been noted that these two periods have been approached in different manners. As Thomas (1988) has argued the Mesolithic was built on models of ecological relationships while the Neolithic was more concerned with social reproduction. Whilst recent work has attempted to break down boundaries very important distinctions still exist in how we treat these periods. Many of these problems can be seen to lie in the language employed and the act of definition itself.

Edmonds (1997, 99) notes that despite recent work advancing ideas of indigenous adoption (Zvelabil and Rowley-Conwy 1984, Whittle 1996), slow economic change (Thomas 1998) and the importance of ideational change (Bradley 1998, Hodder 1990, Thomas 1998) we still "tend to treat the break between the two periods as a substantive and unitary entity". With this substantive and unitary break we not only impose two different names but two different and non-converging central plots centred on the

stereotypical assumptions outlined above. This has meant that within Neolithic studies we have become better and better at refining our understanding of terrestrial and domestic relationships, yet have frequently failed to adequately explore the potential of action outside this limited sphere.

It is in coastal areas and small island groups that the problems with these stereotypes become most apparent. Finlayson and Edwards (1997, 109) have noted that "The difference between hunter-gatherers and farmers appears to be especially diminished amongst communities who depended heavily on marine resources". This poses the question as to whether groups who are not so heavily dependent upon, but make considerable use of marine resources might have a similar affinity. It is interesting to note that the unitary divide commented upon by Edmonds (1997) can cut across such interesting areas of shared practice with ease. When considering how best to label Mesolithic groups in coastal locations Anders Fischer (1995, 432) concluded that "if we should insist on using one single and reasonably relevant label for the members of all foraging coastal societies, the most appropriate would … be 'boat-person'". Waddington (1997) reinforces this idea by suggesting that "boats and the person were intimately connected for Mesolithic populations". He goes on to note "that aptitude on the seas, a knowledge of them, of where to fish and currents to avoid – 'boat-man-ship' – were defining characteristics of some Mesolithic persons". However this defining characteristic does not extend into the Neolithic, "The transformation of the Neolithic was that the boat-person, in these senses, ceased to exist. A person became defined by other activities" (Waddington 1997).

In light of the power of stereotypes noted above it might be prudent to consider the disappearance of the boat person as an artefact of the central plots and driving narratives of the Neolithic as we see it today, rather than of the archaeological record. This is especially important when considering maritime action and the Neolithic of Orkney as by necessity the very introduction of domesticates and even red deer (Clutton-Brock 1979) was a maritime venture. Ritchie (1995) notes that the navigation of the notoriously dangerous Pentland Firth between mainland Scotland and Orkney would have been no mean feat on a calm day. Even when established within the islands fishing continued to take place and people must have still moved between islands. As such the skills of the boat-person and the fruits of their labour were still required, yet their contribution to Neolithic society is under theorized.

One potential further reason for a marginalisation of maritime activity in the Neolithic can be posed. We are happy to conceive of the Mesolithic as different and other given its substantially different economic practice to that which we experience today. On the other hand, the Neolithic is often explored in all too familiar terms of settlement and agriculture. It may be no small coincidence that while most archaeologists have seen farming in some guise and have experience of landscape, fewer in number have spent similar time at sea. Correspondingly even in island areas we produce a Neolithic that spends most of its time concerned with land. Fraser (1983, 11) embraces this aspect of archaeology stating that "we can never hope to reconstruct the past as it was … but we can hope to reconstruct the past in our own image". Whilst this may be true, it does not

mean that we cannot stretch our interpretations through widening our experiences and understanding. As such we should take note when Towsey (2002, 1) states of modern day Orkney "A frequently heard description of Orcadians is 'farmers with boats' but this does no justice to the complex and ever-changing relationship people in Orkney have with the sea". Thus according to the arguments of historical relativism made by Fraser above, if we can be aware of this relationship in the present, we can and should be aware of it in the past.

Towards a Lived space approach

The most common term used to describe attempts to contextualise and explain action in the Neolithic is that of a landscape approach. This unifying moniker incorporates a wide variety of approaches working towards varying ends through different methods. Given the large number of Neolithic sites within Orkney (figure 1) it is unsurprising that it is has been home to numerous landscape studies (Davidson 1979, Fraser 1983, Renfrew 1979, Richards 1996). Within these works the presence of the sea has not been entirely excluded. Fraser (1983, 62) offers a wide ranging consideration of tomb location within the islands, and in particular noted that many were often located "near good landing beaches and good soils". Renfrew (1979) in considering the location of tombs also noted that some relationship to fishing grounds may have been important. However, it is only with the work of Richards (1996) in his exploration of the later Neolithic henge monuments of Stennenss on mainland Orkney that we see discussion of how water was important. Richards (1996, 314) notes that through exploring the "social construction of landscape" it became apparent that the relationship between the water of the lakes surrounding the monuments themselves was of utmost importance. Accordingly Richards (1996, 313) states that "water [can be] identified as a major component" in the ontology of the Neolithic in Orkney.

However, despite the quotation from Fraser used at the beginning of this paper, Renfrew's comments on the possible role of fishing, and the realisation by Richards of the importance of water within Neolithic Orcadian cosmology, none of the authors seriously considers how action at sea articulated with action on land. Although Richards identifies water as a key component in cosmology his discussion focuses on inland lakes and does not account for the largest and perhaps most affective body of water within the islands, the sea. The sea has thus been acknowledged but not truly engaged with by those carrying out landscape work. Most frequently the sea is seen as an edge or liminal zone at which investigation can stop. Scarre (2002, 2) notes that living next to the "edge of the limitless ocean may have inspired and informed particular notions of cosmology and geography". This appears to be a step in the right direction, in a similar vein to that taken by Richards. However, the chosen focus is once again upon how sea demarcates land, it is seen as limitless and presumably unknowable. We effectively consider how people may have looked from land out to sea, or stood on cliffs and looked in land appreciating the experience of hearing the sea, smelling the sea but rarely how being at sea could affect your understanding of the land.

Nicholson (1978, 105) noted of 18th Century small boat fishermen/farmers in Shetland that "they came to know the underwater features about as well as the features ashore". The best places to fish were given names, and their locations noted through aligning landmarks. Thus land and sea were referentially bound together and the sea was far from homogenous. The deficiency of the landscape approach to consider the above quality and variability of the maritime environment has been addressed by Broodbank (2000).

Broodbank offers the concept of 'islandscapes' as a way in which this terrestrial bias may be removed. A phenomenological approach that takes account of raking sea-level views and the different routes for moving between islands is put forward. As such the sea is not seen as an edge or a boundary but a connection. This mirrors discussions of people within islands groups such as those of the Pacific. Gladwin (1970, 34) notes that when Pacific islanders speak "of the ocean the words … refer not to an amorphous expanse of water but rather to the assemblage of seaways". As Terrell (1986, 74) notes, these seaways are read through seamarks, of "clouds, birds, ocean swells, changes in sea colour and other environmental signs". This reinforces the idea of a known and knowable sea indicated in the quotation from Nicholson above. Essentially Broodbank through islandscapes raises the profile of action upon the sea and its place in island societies of the past.

It is this consideration of action at sea that is particularly appealing in Broodbank's work. It demonstrates that through recognising maritime activity within island groups we can produce new understandings of these areas. What Broodbank (2000, 1) is at pains to promote is the idea that "islanders have consciously fashioned, and refashioned, their own identities and worlds" and as such any one concept of what an island should be like will never work. This realisation reinforces the need for an approach that explores the totality of action.

It is within Ingolds (1993) concept of taskscape that Edmonds (1997) believes such an approach may be found. Ingold (1993, 152) asserts that the landscape "tells – or rather *is* – a story" that is both remembered and created through engagement. Thus the tasks we perform, and the times at which they are done, create our understanding of our surrounds. As such through carefully considering what activities were undertaken when, archaeology may hope to recreate something of how people in the past understood and interpreted their world. Edmonds (1997, 99) notes that much of our difficulty in understanding the Mesolithic and Neolithic comes from a failure to "talk in detail about the structure of the 'taskscapes' that people inhabited". Edmonds (1997, 99) goes onto assert that due to this lack of consideration our discussion of sites such as monuments "seem abstracted from their broader material context". Thus if we wish to understand monumental construction consideration of the physical location alone can never be enough. The location itself always needs to be contextualised within an idea of a specific taskscape.

Ingolds (1993) idea of taskscape and the attached concept of dwelling are clearly useful and powerful ways of approaching the past. Furthermore it easily meshes with Giddens stucturation theory (1984) in that the actions with which the taskscape is constructed are

examples of 'structuring structures'. Ingold also pushes for taskscapes to include consideration of the sounds, textures and experience within the environment. This ensures that the call for consideration of phenomenological aspects of being in the world, made by Broodbank to help assert the affective nature of the maritime environment, can also be included. This desire for the acknowledgement of the affective nature of environment is mirrored by Scarre (2002, 3) who argues that if we wish to understand the "symbolic or cosmological significance" of monuments we must appreciate locations in terms of more than simple resource availability. This appreciation of the importance of understanding a variety of action, and the affective nature of surroundings, leads us towards a lived space perspective.

The concept of a lived space perspective as intended here refers to the work of Edward Soja on spatiality. Soja (1996) describes attitudes toward spatiality as traditionally split into two perspectives. A Firstspace perspective refers to an approach that focuses on "the real material world" (1996, 6) as exemplified in consideration of tomb location in terms of height and distance from the sea. Secondspace relates to a perspective "that interprets this reality through 'imagined' representations of spatiality" (1996, 6). These imagined representations incorporate our thoughts on ideational aspects of space. Secondspace perspectives would thus include ideas on what the imagined affective qualities of tomb location might imply about the past, or equally the imagined representation of spatial activity carried out within this paper. What Soja advocates in a Thirdspace perspective is a recombination of First and Secondspace to produce 'lived space'. As Soja himself noted in a recent interview, this Thirdspace is a "space of complete experience, of the unseen and incomprehensible as well as the tangible and everyday" (Blake 2002, 141), or as Robin and Rothschild have termed it, lived space "must be simultaneously real and imagined" (2002, 162). Thus our considerations of taskscape, structuration, phenomenology and cosmology need to be bound together.

The reason for this is clearly stated by Soja (1996, 57),

> "Everything comes tighter in Thirdspace: subjectivity and objectivity, the abstract and the concrete, the real and the imagined, the knowable and the unimaginable, the repetitive and the differential, structure and agency, mind and body, consciousness and the unconscious, the disciplined and the transdisciplinary, everyday life and unending history. Anything which fragments Thirdspace into separate specialized knowledges or exclusive domains – even on the pretext of handling its infinite complexity – destroys its meaning and openness."

It is this move against the division of life into separate categories which resonates with the desire to explore the importance of relationships between activities as advocated here. Thus if we want to look at monuments in the lived space of the past we have to explore all known other parts of the story, all known real and imagined places. Thus it is imperative that we resolve the position of maritime practice within the islands for at present our concepts of lived space are fragmented, and as such we may have destroyed its meaning. The concept of taskscape can be seen to come close to these ideas, yet it lacks the explicit appeal to consider the more imaginary aspects which are born out of everyday experience.

Lived space and the Knap of Howar

The Orkney archipelago consists of seventy islands of varying size lying off the North East coast of Scotland (figure 1). Distances between the islands are rarely greater than two kilometres and their low lying nature ensure that from the infrequent high points it is usually possible to see a number of the islands stretching before you. Today the islands are separated from the mainland by a 10km stretch of water, known as the Pentland Firth. This notorious channel is famed for having currents of between 7-12 knots, ensuring that the journey from Caithness to Orkney is rarely an easy one. Further to this, north of Mull Head on Papa Westray we find 'the Bore Röst' where the North and Atlantic seas meet, producing a significant tidal race of five knots. These strong currents are reflected in other areas within the islands, such as the Eynhallow and Hoy Sounds where even today's ferries rely on slack water to gain passage. This dynamic and imposing maritime environment is augmented by the numerous lochs within the islands that ensure you are rarely far from water, even when on the larger islands.

The Knap of Howar early Neolithic settlement lies on the west coast of one Orkney's most northerly isles, Papa Westray (see figure 2). The site comprises of two remarkably complete structures (figure 3) which were first excavated by Trail and Kirkness (1937) in the 1930's . The site was subsequently reinvestigated by Ritchie in the early 1980s and it is thanks to the detailed nature of the subsequent publication that the following interpretation is possible. Ritchie (1983, 44) describes the site as "the remains of a small Neolithic farmstead" dating between 3800 – 2800 BC. The structures relate to a period dated between 3500 – 3100 BC. Occupation of these structures was broken down into two further phases, with the configuration visible in figure 3 relating to phase II. However, Ritchie (1983, 44) notes there "was no cultural and no significant chronological difference between these two main periods" of occupation and as such it might be better seen as rejuvenation of the structures rather than as separate occupations. Discussion of the nature of the lived space will begin with an attempt at recreating the islands landform as it was in the past before moving on to discuss evidence for action.

Landform and Environment

In order to be able to consider the spatial and temporal nature of action at the site it is first important to consider how the environment has changed through time. Bunting (1994, 772) notes that due to Orkney lying on or near the line of zero isostatic movement "Holocene sea-level changes have probably been of the order of a few meters". This is supported by Lambeck (1995) who states "a maximum in sea level is predicted to occur at around 6000 years BP". This date of 6000 BP may be slightly misleading in that although no major sea level rise has occurred since that date sea levels have continued to slowly rise. This slight change in sea level when matched with erosion can have profound affects on landform. This is well demonstrated in the one detailed study published on regional coastal change within Orkney undertaken by Leinert et al (2000). Here coastal reconstruction in the area around Skara Brae (Skail bay) revealed that what is today a coastal settlement resided well inland when occupied. Leinert et al (2000, 510) conclude that it is the "high-energy coastal environment that has resulted in a diverse morphology" more than sea level change.

The fact that so little work has been done on coastal erosion within the islands means that it is very difficult to determine its affects when considering changing landform. It is clear that significant erosion has occurred on the west coast of Papa Westray, as indicated by the need for a wall to protect the site from the sea today. Yet given that water depths at the shallowest point between Westray and Papa Westray do not drop lower than around 3m, and more frequent soundings produce depths of between 4 and 6 m it is considered unlikely that the two islands would have been joined by a permanent land connection. However, it is possible that as Ritchie (1983) notes that the two islands may have at times been connected by a beach flat at low tide. Either way the water depth between the two islands at their narrowest point would have been shallow. In contrast the shallow depth of water in the bay between the Holm of Papa Westray and Papa Westray (0.2 - 1.1m) supports Ritchie's (1995, 15) assertion that "the Holm was almost certainly a promontory on the east coast of Papa Westray".

This data on landform can be used to create an image of what the island may have looked like around 3500 BC (figure 4). Whilst this is useful as a model for the discussion to come it is clear is that considerably more work needs to be done to examine local sea level change and erosion around the island. However, for this sturdy whether Papa Westray was a separate island, or joined by a narrow strip of land to Westray makes little difference.

Activities and action

Ritchie (1983, 56) states that the settlement "appears to have been an entirely self-supporting unit based on mixed farming", although she goes on to state that the exact balance between stockbreeding and cultivation cannot be determined due to partial preservation. The self sufficient nature of the settlement is surmised from the fact that materials for pottery and stone tool production are all locally obtainable, alongside a range of foodstuffs. It must be noted at this early point that the concept of economic self sufficiency can be misleading in that it may suggest a community that rarely left the island or communicated with others. Whilst this may be true, our ideas of how relatively low density populations maintain themselves revolve around groups coming together for social reasons, for example to find marriage partners. Furthermore, as will be shown below it is not only the relationship between stockbreeding and cultivation that is unclear but between these practices and other food sources and how they shifted through the year.

Knowing the Land

A large variety of animals and plants relating to, or caught upon the land were found during excavation. These included cattle, sheep, pig, red deer, hazelnuts, wheat, barley, and birds (Ritchie 1983). Of this selection the most heavily represented were cattle sheep which Ritchie (1983, 56) notes were reared in equal proportion at the site. An insight into how the herds were managed is given by Noddle (1983) in her analysis of the material. Noddle (1983, 94) notes that "Over 50% of the cattle bones derived from individuals which had died in the year they were born". Traditional explanations for such high mortality rates centre on a lack of winter fodder. However, Noddle does not support this argument for animals at the Knap of Howar, stating (1983, 99) "the impression

gained here was that the animals had a good standard of nutrition" instead Noddle's favoured explanation is that of an early culling to produce hides for working. These hides are thought to have been much tougher than modern calf hides and as such Ritchie (1983) indicates that hides from sheep were more likely to be used for clothing. An alternative use for these hides will be offered below.

In terms of spatiality of stockbreeding the small size of the island precludes the need for much management, however if it were joined to Westray time would need to spent controlling the movements of herds. However, the cattle's own needs for freshwater indicate that they were more likely to be found in the south area of the island where freshwater gathers today. As such this is the area that graphically will be associated with cattle (see figure 5), however in reality cattle are most likely to have moved across the island as would the sheep. Pigs on the other hand, given a scavenging omnivorous nature are thought more likely to have been found close to the settlement. However, the number of pigs kept appears to have been small, with a minimum number of individuals of 23 calculated by Noddle (1983) in comparison to 164 sheep and 142 cattle.

The temporal rhythm of stockbreeding provides similarly sparse data. Lambing, calving and the birth of piglets is likely to have occurred around April, as it does today in Orkney. The high number of cattle bones at the site belonging to newborns (35%) indicates the possibility that it was around this time that a number of younger cattle were killed for their hides. The contribution of Red deer to the site appears numerically small, with only 7 fragments of bone being found. Unlike the above species Noddle (1983) does not believe that the animals represented lived the island but were imported. As such it is interesting to note that Clarke and Sharples (1985) determine the presence of a managed herd of deer on Westray in the later Neolihtic. As such any hunting activity for deer is thought to have occurred on Westray (see figure 5). The managed nature of these deer herds is indicated in the fact that along with cattle sheep and cereals red deer were introduced to the island in the Neolithic (Clutton Brock 1979). In terms of the temporal nature of red deer claves tend to be born slightly later than cattle around May.

This collection of land based animals is augmented through evidence for hunting of birds. Over forty different species were recovered from the site with 61% of fragments relating to birds the bred on the island, 24% to autumn and winter visitors and 15% to summer visitors (Bramwell 1983). This would appear to indicate a year round programme of hunting with Bramwell (1983) suggesting that it was the oil within the birds which was particularly sought as means of illumination. However, hunting for food and especially eggs in the breading seasons of late spring and early summer appears probable. Spatially bird hunting/egg gathering is likely to have ranged right across the island as evidence of inland, cliff and shore nesting birds is present.

The final area of land relations to be considered relates cereals and wild plants. Both wheat and barley appear to have been grown at the site but in what quantities remains unclear (Dickson 1983). A lack of evidence for storage pits, the small nature of the stone 'boxes' found inside the huts, and as Jones (1999) has indicated a lack of suitable ceramic storage vessels appears to suggest that crops such as Barley were not stored in sufficient

quantities to act as a winter foodstuff. It is of course possible that stores were kept away from the settlement, or in perishable containers, yet with a lack of evidence it is hard to determine its relationship to other food sources. A similar problem is posed by traces of hazelnuts from the site.

Spatially cereals could be grown over much of the island as they are today, perhaps excluding the lower areas in the south east which tend to become waterlogged. However, once again it would appear likely that planted areas would have been relatively close to the settlement (see figure 5). Temporally crops are likely to have been sown in April or May and harvested through September, October and November. The maintenance of a yearly crop would have required that some form of seed store was kept, and it is feasible that the small stone boxes found within the structures could have fulfilled this role. Jones (1999,70) considers the temporal nature of barley growing as analogous to "the growth cycles of human beings" and as engendering ideas of cyclical time. Yet as will be shown late just as crop growth represents one cyclical rhythm, tide could be seen as another.

Knowing the Sea

Traces of fish, shellfish, seal and whale were all found at the Knap of Howar. The role of whales is hard to judge as during Ritchie's excavations only a few traces were found yet Platt (1937, 320) noted "Many large fragments" of whale bone in the original excavation. There was also a whale bone found within the walling of the structures themselves (Ritchie 1983). It is not inconceivable that opportunist beaching of whales was undertaken by herding them ashore from boats as was practice in Orkney and Shetland until recently (Fenton 1978, Nicholson 1978). The seal bones found at the site appear more suggestive of opportunistic hunting in that Noddle (1983) state bones found relate to sick and diseased individuals.

However a great deal can be said about maritime action from the fish and shellfish remains. A large range of fish species were represented at the site (see figure 6) which Wheeler (1983, 105) believed "were important to the diet of the community". Each species favours a certain habitat which can be used to indicate something of the fishing practice used to catch them. The eel and flounder are likely to have come from freshwater or estuarine areas, whilst the ballan wrasse, rockling, young saithe and smaller gadoids are sea fish that could be taken close to shore. As such Wheeler (1983, 104) determines that the presence of these fish may indicate fishing from "rocky headlands using hook and line, or a baited dropnet". One other feature of young saithe that is worth noting is that large numbers are frequently found in areas of strong currents near rocky outcrops. It is within these turbulent waters that they congregate to feed, and so present the best opportunity to catch. As such the cliffs at the northern tip of Papa Westray with the strong current of 'the bore Röst' below would offer a particularly good fishing spot (see figure 5).

However, fish relating to theses inshore and freshwater locations make up only a small percentage of the material recovered (23%). Wheeler (1983, 104) notes that "the

remainder of the species are strongly indicative of offshore fishing activity". Adult cod favour offshore banks in waters of between 10 and 50m today, although as Wheeler notes may have been taken closer inshore in the Neolithic. Mature Saithe prefer offshore locations with a rocky sea floor and strong current in depths between 20-100m. Ling favour a similar habitat at depths great than 10m, although as Wheeler (1979) notes they are more frequently found today at depths of between 300-400m. Fenton's (1978, 577) account of Orkney in the 19th century supports this idea of ling coming from deeper water, noting that ling were fished for between "50 to 100 fathoms" or 91-182 meters. It is interesting to note that similar deep sea fishing practices are seen throughout the Neolithic at the site of Tofts Ness on Sanday (Nicholson 1998).

This data for deepwater fishing is ratified by the presence of a Halibut that Wheeler (1983, 105) determines would have been "130 cm long, with a weight in the region of 40kg". This size of Halibut favours hard sea floors at depths greater than 10m, and is most frequently found between 20 and 30m. Wheeler concludes that a deepwater offshore fishery must have existed and that this indicated the possession of "boats capable of withstanding the weather between two and five miles out to sea, and the use of fishing lines capable of holding fish of 10kg (possibly even 40kg)" (1983, 105). This information concerning the ecology of the fish helps us to think about areas around the island where they may be found (see figure 5). It is worth taking time to consider the technological and experiential implications of such activity, as they find no direct comparison in terrestrial activity. Furthermore through understanding something of the tactics of fishing a greater understanding of the timing of the activity emerges.

Figure 7 allows for a better appreciation of the size of the halibut being discussed above. Similarly sized conger eel (120 &150cm) are also evidenced at the site, at the same time as large ling and saithe weighing around 10kg and slightly smaller cod. As noted by Wheeler (1983) the presence of such fish indicates the use of boats and hand lines. Unfortunately no finds have been made of any form of boat dating to the Neolithic within Orkney. It is important to remember that these missing boats were not only used for fishing, but for the original transportation of animals to the island and all subsequent movement within them, as such they are not archaeological invisible. The fishing evidence suggests seaworthy craft capable of dealing with Orkney's frequent rough seas and strong currents. This combined with the absence of large forests on the islands works against the idea of dugout canoes. As Smith (1997, 140) notes "it would have been a rash person who ventured far in such a craft [as a logboat] in the cold, stormy waters around the British Isles".

With this in mind it appears likely that a skin or hide boat technology, comparable with the Inuit umiaq or Irish curragh was used. This mirrors conclusions made by Clark (1948), McGrail (1998), Nicholson (1998), Ritchie (1995) and Saville (2000). Skin boats require the primary construction of a frame to which hides are attached. The material for this frame is most frequently wood which could have come from driftwood or the small forest scrub on the island indicated in the pollen profiles (Evans and Vaughn 1983). However, with the presence of whale bone found at the site it is worth noting Palmer et al's (2001) observation that this material is also used in boat construction. The skins

required for the maintenance of such boats might go some way to explain the killing of cattle for hides suggested by Noddle. The performance of skin boats is well attested, they are light and sea worthy as illustrated by the Irish monks using curraghs to reach Iceland (Smith 1997). However, the thin nature of the hull ensures a close proximity to the sea with many skin boats having an almost transparent quality.

To be fishing in a skin boat is to be intimately close with the water. Furthermore the thin nature of the hull requires a considerable degree of skill in piloting to ensure it is not cut on rocks. The probable use of cattle hide as the skin for the boat introduces an interesting relationship between land-based domesticates and the sea. Not only would the land have been used as a reference for fishing grounds, but the land was referenced in the very boats people were fishing from.

Consideration also needs to be paid to the lines used to catch fish. As Wheeler (1983) notes to catch a fish requires a line double the length of the depth being fished. As such if we consider that the 40kg Halibut is likely to have come from within 20m of water this suggests a line of around 40m. The larger ling and saithe in the site may well represent fishing in even greater depths. If the accounts of Fenton (1978) of ling fishing are in any way comparable to the Neolithic this would appear to indicate lines in excess of 180m. However, even 40m of line capable of hauling a 40kg Halibut from 20m of water represents a considerable investment of labour and skill not recognisable in any other form of Neolithic practice.

The construction and maintenance of boats, lines and nets reveal a socio-technical system that previously has been seen as unimportant within the Neolithic. As Dobres and Hoffman (1994, 212) have noted "Technological acts, whether mundane or spectacular are a fundamental medium through which social relationships, power structures, worldviews, and social production and reproduction are expressed and defined". This is particularly important as Muckelroy (1978, 3) notes "In any pre-industrial society, from the upper Palaeolithic to the nineteenth century A.D., a boat … was the largest and most complex machine produced". Fishing as activity thus embodies a range of demanding technological acts that embodied a specific element of a world view. To go fishing is not an off hand activity, it requires prior planning and investment. It is, however, particularly interest that through fishing, and through the technology of fishing, the world view of Neolithic people in coastal or island areas ay be significantly different to that of inland areas.

This is especially the case when one pays close attention to the idea of the socio-technical system around boat construction and possibility of a Mesolithic presence within the islands. The concept of an Orcadian Mesolithic is a relatively recent and controversial phenomenon. However, recent work by Saville (1996, 2000) has strongly argued the case for a Mesolithic presence which appears more and more probable. If we consider the skins for boats which would have been used by these groups they would have had to have come from either seal or deer. The shift to domesticates and the potential use of cattle hides in boat construction presents an interesting area of potential integration. This is even more important given that Mesolithic traditions of stone tool production appear

present at the Knap of Howar. Ritchie (1995, 20) notes that the discovery of such flintwork rather than indicating a Mesolithic presence indicates "the survival of old-fashioned ideas". Thus two areas of technological practice, of stone tool production and fishing appear convergent at the Knap of Howar.

It is the degree to which fishing has to be planned that is particularly interesting. Fenton (1978, 586) notes that "The tide was an important factor in line fishing … different tides suited different fishing areas". The best fishing often occurs within the stronger currents and tides. As such Fenton goes on to note that tides were of such importance that "every movement was observed carefully and added to the tale of experience" (1978, 586). Thus when we consider the potential spatiality of fishing we have to realise the precise nature of the temporality of those locations too. To fish a specific location on a flood tide you have to carefully position your boat above that location and then drift down onto it. This may mean setting off on an ebb tide to be carried back in on a flood tide. The importance of tides to the Neolithic is an issue that will be returned to later.

Given these habitat preferences the areas indicated in figure 5 can be suggested as potential fishing locations. These potential locations are based on modern bathymetry, so only serve to suggest distances travelled and the wide ranging nature of activity at the Knap of Howar. The idea of figure 5 is not so much pin point but as descriptive aid to provoke thought. In terms of temporality, fishing for most of these species in Orkney is possible all year round. However, calmer sea conditions in the summer ensure that this would be the safest times to go out. Correspondingly the summer months are period of a relative rest in the agricultural calendar. As such, practice on land and sea may be seen to complement one another. However, whilst it is not possible to harvest barley in January it is possible to fish. In fact although the most dangerous time of year, fishing for species like cod would be most productive in winter when the fish move into the waters around Orkney to spawn.

A total of 76, 070 shell fish were recovered at the Knap of Howar, with this only relating to complete shells and ignoring the many fragments encountered. Of these 63, 996 (85%) were identifiable as belonging to the common limpet, with the next significant contender the oyster at c. 7%. From the types of shellfish recovered Evans and Vaughn (1983) are able to determine the types of habitats exploited and the methods for gathering. They conclude that it was the "extreme low-water region … that was exploited especially" (1983, 113) with the oysters possibly gathered through surface diving. Again this activity reveals tidal knowledge as the extreme low-water region would only be exposed for roughly half-an-hour twice a day.

Despite the apparently high number of shellfish gathered, Evans and Vaughn conclude that shellfish were of "overall insignificance" as a resource. The role most commonly proposed for so many shellfish is that of bait for fishing (Ritchie 1983, Evans and Vaughn 1983, Childe & Grant 1939) which is hard to see as insignificant in light of the above discussion. Equally, Erlandson (2001) has recently criticised this idea of shellfish as an insignificant food resource as shellfish are both abundant and dependable in nature and provide a good source of protein. This is borne out by both Fenton's (1978) and

Towsey's (2002) accounts of life in modern times within Orkney. As Harcus Scott comments "A lot of folk ate a lot of cockles as well … and some of the small crofters ate an awful lot of cockles because they were available, they were life-savers" (Towsey 2002, 19).

It thus seems rash to dismiss the contribution of such 'life savers' as 'insignificant' due to a low calorific content. Their use as fish bait adds another layer of significance to their collection and another stratum of depth to the amount of planning that has to go into fishing. Furthermore, as we are concerned here with ideas of social significance and not just economy we should be wary of equating primary economic importance with primary social significance. As the work of Lemmonier (1993, 126) on pigs in Papa New Guinea has shown, those animals which are "highly charged symbolic objects" of the utmost importance can often be of little calorific importance in relation to other food sources. In actuality the pigs in Lemmoneir's example sometimes consume over half of the available cultivated crops. Thus whilst the central significance of cattle and sheep to the economy of the site is not doubted, their immediate social significance cannot be assumed.

Spatially shellfish collection is thought to have occurred in close proximity to the site, with the large sandflat that may have been exposed between Westray and Papa Westray being particularly suitable. Temporally as noted above shellfish are available all year but only for limited periods in the day. It is thus becoming apparent that the temporality of marine resources is of a different nature to that of land based resources. The rhythm of agriculture moves in waves of months whilst that of fishing and shellfish collection in terms of days. What comes to fore out of all the above discussion is that in reality we know very little about the precise makeup of diet in the past. It appears likely that cattle and sheep were an important source of food but the overriding picture is of an inclusive economy which made use of a wide range of areas at different times of year.

Lived space, base line rhythms and the Neolithic of Orkney

An appreciation of maritime activity brings to light the existence of new real and imagined places within the Neolithic. The sea rather than being homogenous becomes as invested with meaning as the landscape. Specific places in the seascape would have been continually returned to at specific points in time. It is the rhythmic nature and the dependability of the resources that appears critical. Nicholson (1978, 117) notes "In many ways the produce of the sea was more dependable than the harvest of the land" in 18th century Shetland. I would propose a similar circumstance in Neolithic Orkney. The continual ebb and flow of the tide on a daily basis brought with it a range of resources upon which the communities depended. These resources extend beyond fish and shellfish to include such bounties as whales, seals and all-important driftwood. In many ways the sea provided for the people of Neolithic Orkney in a way the land never could. Where agriculture depended on rhythms of a long monthly/yearly wavelength the sea offered a constant base line upon which these new ways of living could be built.

This relationship with sea was markedly difference to the new relationships with the land being born out of agricultural practice. Where relationships on land offered a greater

degree of control, in that seeds could be planted and animals managed, the relationship with the sea was of a different nature. The dangers of working at sea are significant even when only a few miles from the coast, especially in the cold waters around Orkney. Thus a certain respect for the sea, and for the knowledge which kept you safe upon it, can easily be imagined. This importance of the sea and of knowledge of the sea suggests something of the imagined places and cosmological place of the sea in the Neolithic. Whittle (2000) has described this importance in the shape of a mythology of the sea within the Mesolithic of the Atlantic seaboard. Whittle argues that carvings on Menhirs in France may represent a combination of Mesolithic coastal mythology with new Neolithic ideas of land relationships. It is this idea of maritime mythology and of mediation between it and that of new Neolithic cosmology that I would like to advance for Orkney.

Towards the northern end of what is now the Holm of Papa Westray lies the remains of an early Neolithic chambered tomb. Unlike the later Neolithic tomb on the southern tip of the Holm, the early Neolithic tomb commands no sweeping vista of the sea, or any obvious alignment on land. This is in comparison to the later Neolithic tomb that is today used as fishing mark for small boat fishermen (Jim Davidson pers comm.) and as such may be seen to have a specific relationship with the sea. However, Henshall (1963) notes that during the excavation of the early Neolithic tomb the presence of ox, bird, red deer, sheep and fish were recorded. Unstan ware pottery was also recovered from the site, which Jones (1999) believes was associated with barley. When the presence of human bones is added to this mix, the assemblage appears to reflect all the major life presences within the island as expressed within the settlement data. The tomb thus may be viewed as a microcosm of the lived space evidenced at the Knap of Howar. All the major rhythms of their lives are witnessed in the deposits, which also make reference to all the important places in their lives.

Each of these different deposits can be seen to reflect a different rhythm and series of socio-technical practices. It is the presence of these multiple rhythms which suggests that rather than embodying new conceptions of time per se in the Neolithic (Bradley 1998) these monumental sites offer a place of mediation. The lived space which encompassed Neolithic people was already full of meanings, of real and imagined places that derived their importance from the sea. The tomb stands as a creation of new place within which the reworking of relationships between people and animals, and associated concepts of time could take place. While settlements represent very ‘real’ places, monuments actively bridge the real and the imagined and offered these new practices a focal point of expression. Monuments might therefore be seen as providing a theatre within which the relationship between these different living things, of people, fish, birds and cattle could be explored. Through being able to manipulate the bones of the dead it may have been possible to manipulate the relationship between people and animals. Where the real material space of the settlement was cluttered with activity and vibrancy of life, monuments presented a blank canvas to work within. This was essentially as the lived space they occupied was not itself blank but was inscribed through tradition with meanings belonging to practices such as hunting and fishing.

As the nature of lived spaces would have been marginally different for different groups it is unsurprising that different tombs carry different assemblages in different locations. The way in which the 'Neolithic' had to be resolved would be different for each different group, but monuments were clearly seen as the place within which this resolution was to occur.

Conclusion

"There is a danger that too much can be made of hunters who gather plants or farmers who fish." Peter Woodman (2000, 224)

Woodman in the quotation above can be seen to be warning against interpretations such as the one proposed here. However, it appears clear that in the case of Neolithic Orkney not enough has been made of farmers who fish. The lived space of Neolithic Orkney stretched well beyond the high water mark and out to sea. This incorporated both corporeal action at sea and a cosmological connection. The lunar, tidal time of the sea was every bit as important as the new agricultural concepts of time. Thus rather than seeing the Neolithic as a time of replacement we would perhaps better see it as a period of integration and mediation.

Acknowledgements:
I would like to thank Andy Jones and Jon Adams for help with my MA work that provided the basis for this paper, and the AHRB for funding the work. I would also like to thank Helen Farr, Matthew Fitzjohn and Matt Brudenell for their comments and suggestions.

Figures:
Fig. 1 Orkney Location Map showing major tidal features and bathymetry
Fig. 2 Knap of Howar Location Map showing major tidal features and bathymetry
Fig. 3 Photo of Site
Fig. 4 Reconstructed land form
Fig. 5 Location of activities
Fig. 6 Fish species graph
Fig. 8 size of fish

References

Bunting, M.J. 1994. Vegetation history of Orkney, Scotland; pollen records from two small basins in west Mainland. *New Phytologist,* 128(4), 771-792

Blake, E. 2002. Spatiality past and present: an interview with Edward Soja, Los Angeles, 12 Aril 2001. *Journal of Social Archaeology* 2(2), 139-158

Bradley, R. 1998. *The Significance of Monuments: On the shaping of human experience in Neolithic and Bronze Age Europe*. London, Routledge

Bramwell, D. 1983. Appendix 5: bird bones from the Knap of Howar, Orkney, in Ritchie, A. Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray. *Proceedings of the Society of Antiquaries of Scotland,* 113, 40-121

Broodbank, C. 2000. *An Island Archaeology of the Early Cyclades*. Cambridge: Cambridge University Press

Case, H. 1969. Neolithic Explanations. *Antiquity,* XLIII, 176-186

Childe, G. & Grant, W. 1939. A stone age settlement at the Braes of Rinyo, Rousay, Orkney. *Proceeding of the Society of Antiquaries of Scotland,* 81, 6-31

Clark, J.G.D. 1948. The development of fishing in prehistoric Europe. *The Antiquaries Journal,* 28, 45-85

Clarke, D.V. & Sharples, N. 1985. Settlements and subsistence in the third millennium BC. In Renfrew (ed) *The Prehistory of Orkney*, Edinburgh, Edinburgh University Press, 54-82

Clutton-Brock, J. 1979. Report of the mammalian remains other than rodents from Quanterness. In C. Renfrew (ed) *Investigations in Orkney*. London, Thames and Hudson 112-134

Davidson, D.A. 1979. The Orcadian environment and cairn location, in C. Renfrew (ed) *Investigations in Orkney*. London, Thames and Hudson, 7-20

Dickson, C. 1983. Appendix 9: Macroscopic plant remains from Knap of Howar, Orkney. In Ritchie, A. Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray. *Proceedings of the Society of Antiquaries of Scotland* 113, 40-121

Dobres, M.-A. and Hoffman, C. 1994. Social Agency and the Dynamics of Prehistoric Technology. *Journal of Archaeological Method and Theory,* 1(3), 211-258.

Edmonds, M. 1997. Taskscape, technology and tradition. *Analecta Prehistoirca Leidensia,* 29, 99-110

Erlandson, J.M. 2001. The Archaeology of aquatic adaptations: Paradigms for a New Millennium. *Journal of Archaeological Research,* 9(4), 287 - 350

Evans, J,G. & M. Vaughan, 1983. Appendix 8: the molluscs from Knap of Howar, Orkney. In A. Ritchie Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray*,* Orkney*, Proceedings of the Society of Antiquaries of Scotland,* 113, 40-121

Fenton, A. 1978. *The Northern Isles: Orkney and Shetland*. Edinburgh, John Donald Publishers Ltd.

Fischer, A. 1995. Epilogue to Man & Sea symposium. In A Fischer (ed.) *Man and Sea in the Mesolithic*, Oxbow Books, Oxford, 431-435

Finlayson, B. & Edwards, K.J. 1997. The Mesolithic. In Edwards, K.J. & Ralson, I.B.M. (eds) *Scotland: Environment and Archaeology, 8000 BC – AD 1000,* John Wiley & Sons Ltd. Chichester, 109 - 125

Fraser, D. 1983. *Land and Society in Neolithic Orkney*. British Archaeological Reports 117 (i & ii), Oxford, British Archaeological Reports

Giddens, A. 1984. *The Constitution of Society.* Cambridge, Polity Press

Gladwin, T. 1970. *East is a big bird: navigation and logic on Puluwat atoll*. Cambridge Mass, Harvard University Press

Henshall, A.S. 1963. *The Chambered Tombs of Scotland, Volume 1*. Edinburgh, Edinburgh University Press.

Hodder, I. 1990. *The Domestication of Europe*. Oxford, Blackwell.

Ingold, T. 1993. The temporality of the landscape. *World Archaeology* 25(2) 152-175

Jones, A. 1999. The world on a plate: ceramics, food technology and cosmology in Neolithic Orkney. *World Archaeology,* 31(1), 55-77

Lambeck, K. 1995. Late Devension and Holocene shorelines of the British Isles and North Sea from models of glacio-hydro-isostatic rebound. *Journal of the Geological Society,* 152, 437-448.

Leinert A.C de la Vega, D.H. Keen, R.L. Jones, J.M. Wells and D.E. Smith 2000. Mid-Holocene environmental changes in the Bay of Skaill, mainland Orkney, Scotland: an integrated geomorphological, sedimentological and stratigraphical study. *Journal of Quaternary Science*, 15(5), 509-528

McGrail, S. 1998. *Ancient Boats in North-West Europe: The Archaeology of Water Transport to AD 1500*, Harlow: Addison Wesley Longman Limited

Muckelroy, K. 1978. *Maritime Archaeology*. Cambridge, Cambridge University Press

Nicholson, J. R. 1978. *Traditional Life in Shetland*, Robert Hale, London

Nicholson, R. 1998. Fishing in the northern isles: a case study based on fish bone assemblages from two multi-period sites on Sanday, Orkney, in *Environmental Archaeology* 2 15-28

Noddle, B. 1983. Appendix 4: Animal bone from Knap of Howar. In Ritchie, A. 1983. Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray. *Proceedings of the Society of Antiquaries of Scotland* 113, 40-121

Palmer, C., L. Blue & S. McGrail. 2001. Hide boats at Hogenakal on the river Kaveri, Tamil Nadu. *South Asian Studies,*17, 199-207

Platt, M. 1937. Report on the animal bones. In Trail, W. and Kirkness, W. 1937. Howar, prehistoric structure on Papa Westray Orkney. *Proceedings of the Society of Antiquaries of Scotalnd* LXXXI 309-321

Renfrew, C. 1979. The Orcadian monuments and society, in C. Renfrew (ed) *Investigations in Orkney*. London, The Society of Antiquaries, 199-224

Richards, C. 1996. Henges and water: towards an elemental understanding of monumentality and landscape. *Journal of Material Culture* 1, 313-336

Ritchie, A. 1983. Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray. *Proceedings of the Society of Antiquaries of Scotland* 113, 40-121

Ritchie, A. 1995. *Prehistoric Orkney*, London, B.T. Batsford Ltd

Robin, C. & Rothschild, N.A. 2002. Archaeological ethnographies, social dynamics of outdoor space. *Journal of Social Archaeology,* 2(2), 159-172

Saville, A. 1996. Lacaille, microliths and the Mesolithic of Orkney. In T. Pollard & A. Morrison (eds) *The Early Prehistory of Scotland*, Edinburgh, Edinburgh University Press

Saville, A. 2000. Orkney and Scotland before the Neolithic period. In A. Rtiche (ed) *Neolithic Orkney in its European Context*, 91-100 Cambridge, McDonald Institute Monographs

Scarre, C. 2002. Coast and cosmos: the Neolithic monuments of northern Brittany, in Scarre, C. (ed) *Monuments and Landscape in Atlantic Europe: Perception and Society during the Neolithic and Early Bronze Age*. London, Routledge 84-102

Smith, C. 1997. *Late Stone Age Hunters of the British Isles*, London, Routledge

Soja, E. 1996. *Thirdspace: journeys to Los Angeles and other real-and-imagined places,* Blackwell, Oxford

Terrell, J. 1986. *Prehistory in the Pacific Islands: A study of variation in language, customs and human biology,* Cambridge, Cambridge University Press

Thomas, J. 1988. Neolithic Explanations Revisited: The Mesolithic-Neolithic Transition in Britain and South Scandinavia. *Proceedings of the Prehistoric Society,* 59-66

Thomas, J. 1998. *Understanding the Neolithic*. London, Routledge

Towsey, K. 2002. *Orkney and the Sea: an oral history*. Kirkwall, The Orcadian Limited

Trail, W. and Kirkness, W. 1937. Howar, prehistoric structure on Papa Westray Orkney. *Proceedings of the Society of Antiquaries of Scotland,* LXXXI, 309-321

Waddington, G. 1997. Navigating the coastal Mesolithic of Western Scotland. *Assemblage* 2, http://www.shef.ac.uk/assem/2/2war1.html#d

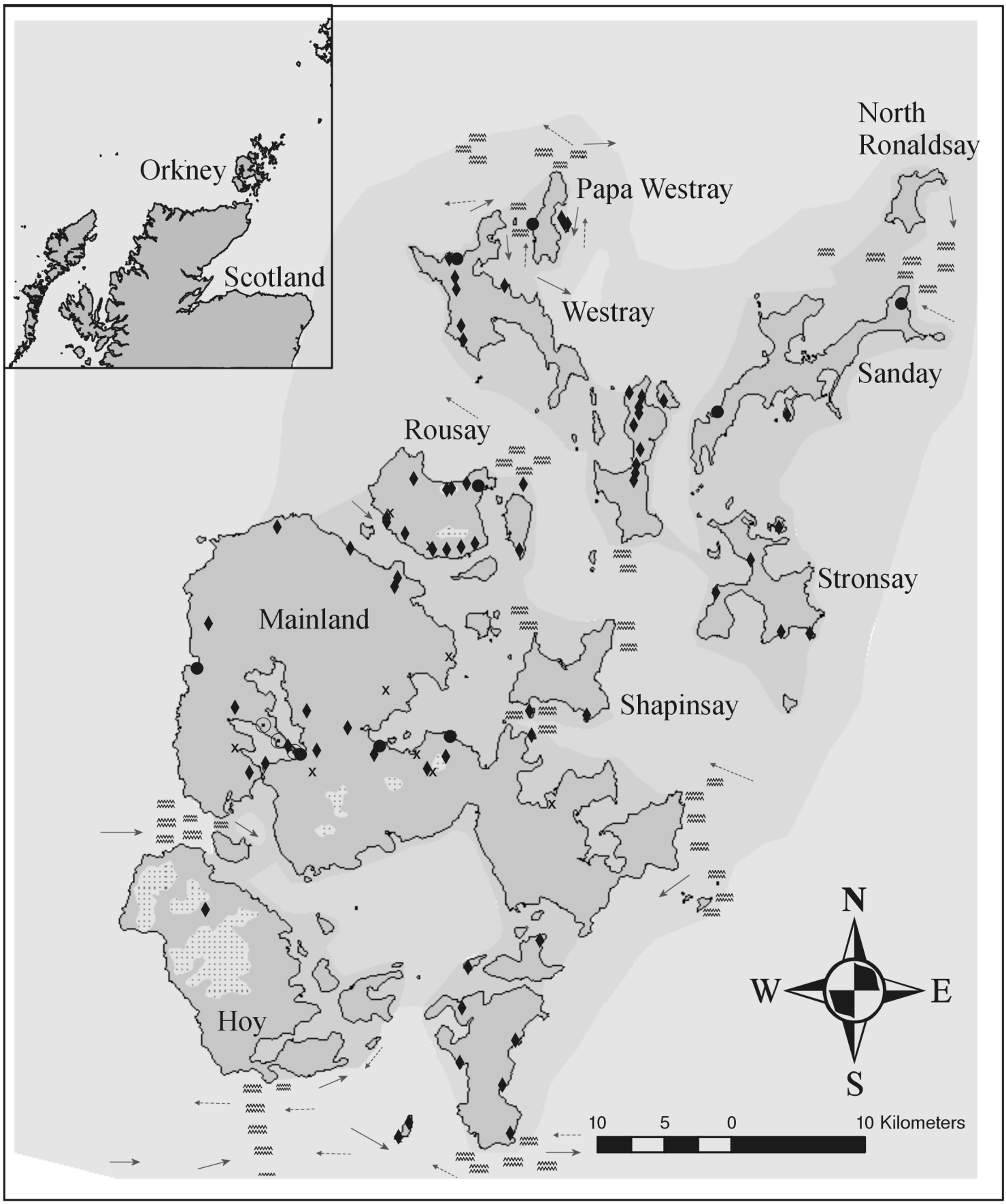
Wheeler, A. 1983. Appendix 6: Fish remains from Knap of Howar, Orkney, in Ritchie, A. Excavation of a Neolithic farmstead at Knap of Howar, Papa Westray. *Proceedings of the Society of Antiquaries of Scotland* 113, 40-121

Whittle, A. 1996. *Europe in the Neolithic: the Creation of New Worlds*. Cambridge, Cambridge University Press

Whittle, A. 2000. 'Very Like a Whale': Menhirs, motifs and myths in the Mesolithic-Neolithic transition of northwest Europe. *Cambridge Archaeological Journal,* 10(2), 243-59

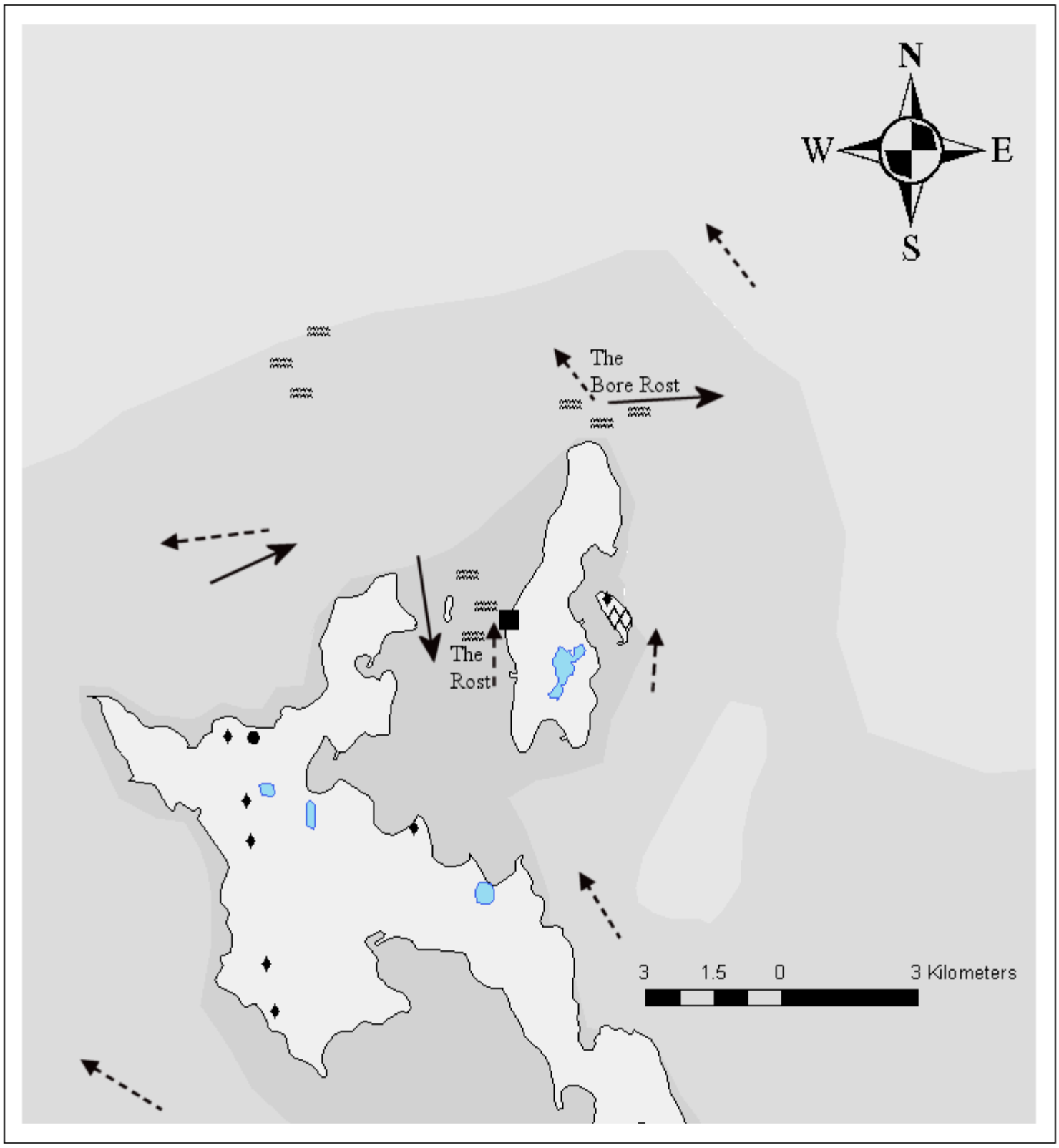
Woodman, P.C. 2000. Getting back to basics: transitions to farming in Ireland and Britain, in T.D. Price (ed) *Europe's First Farmers* 219-259. Cambridge, Cambridge University Press

Zvelebil, M. & P. Rowley-Conwy, 1984. Transition to farming in northern Europe: a hunter-gatherer perspective. *Norwegian Archaeological Review* 17(2), 104-128



Legend

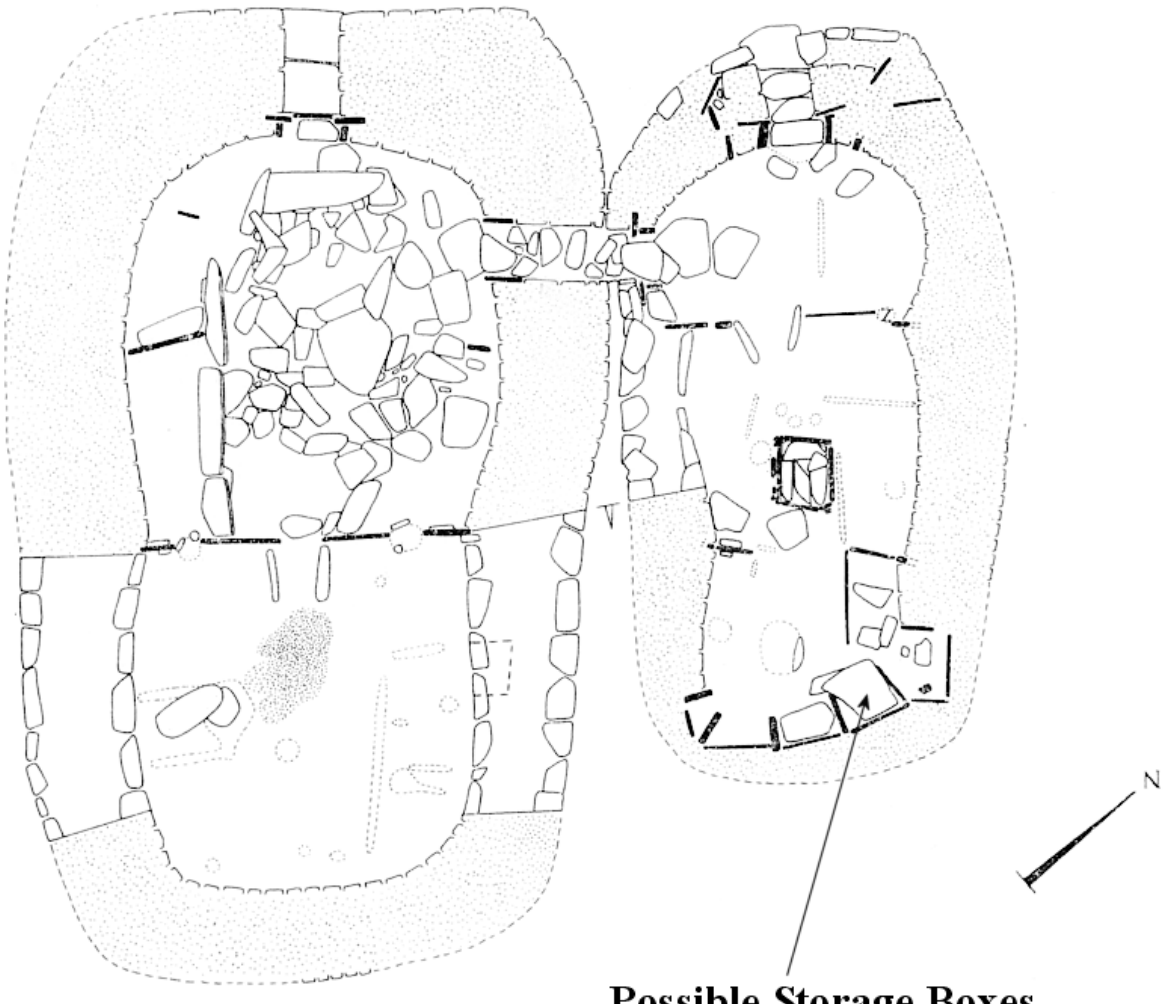
- Neolithic Settlements
- Neolithic Tombs
- Henge Monumnents
- Mesolithic Flint
- Land over 200m
- Tide Rips
- Tidal Stream (ebb)
- Tidal Stream (flood)
- 0--20m
- -20- -50m
- -50m+

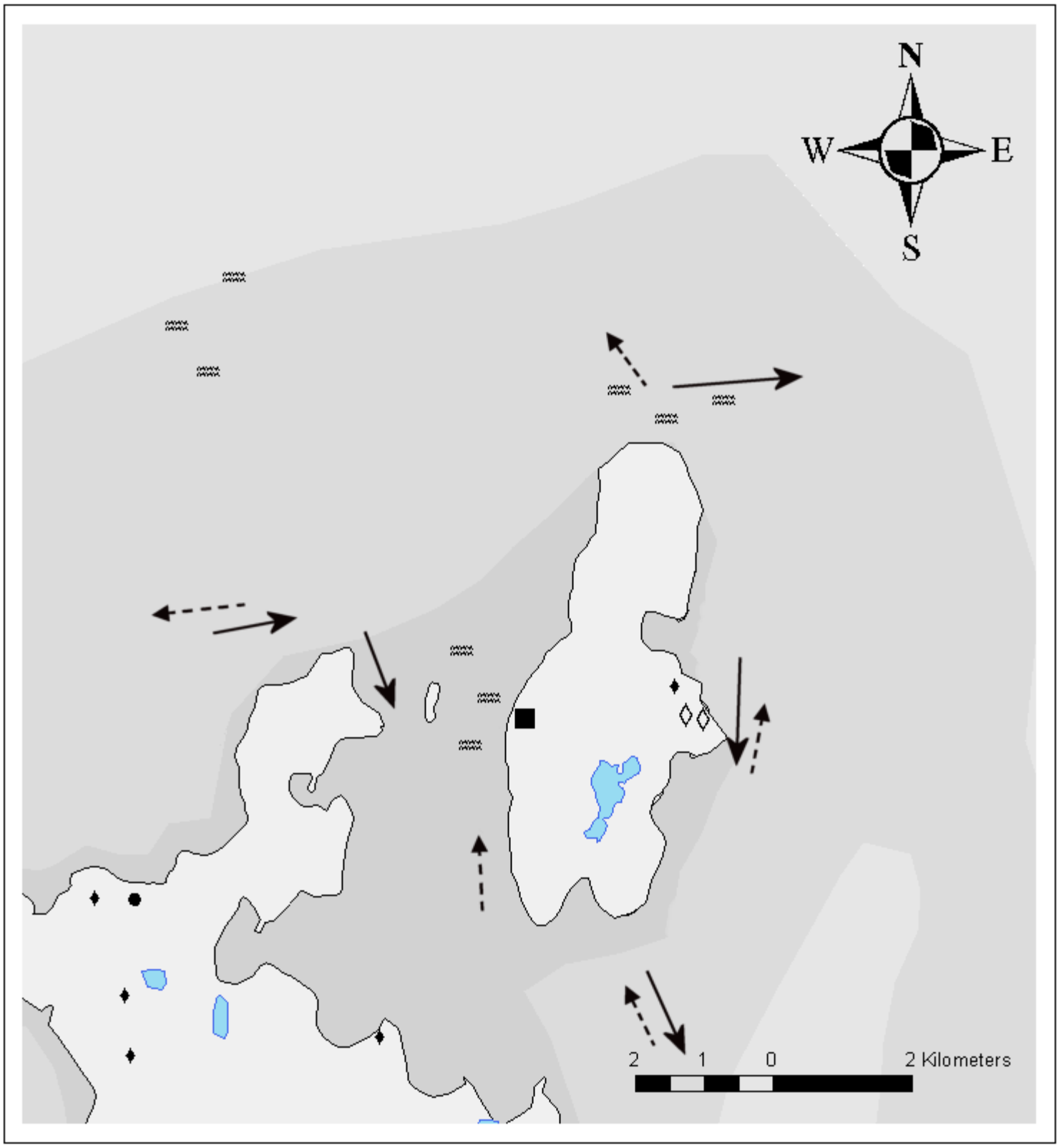


Legend

- The Knap of Howar
- Late Neolithic Tombs
- Early Neolithic Tombs
- Late Neolithic Settlements
- Tide Rips
- Tidal Stream (ebb)
- Tidal Stream (flood)
- 0--20m
- -20- -50m
- -50m+

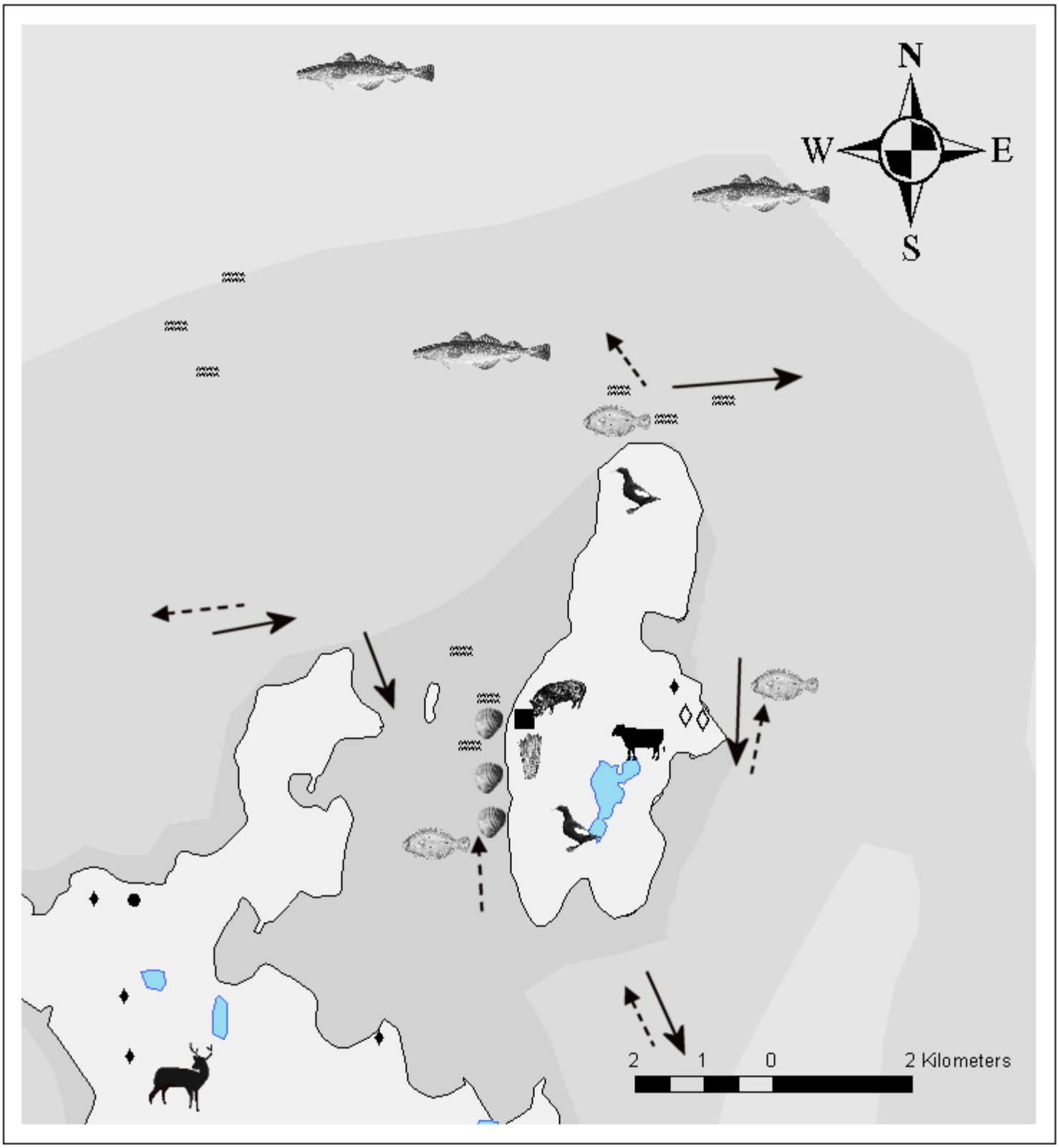
0 1 2 3 4 5 6 7 8 9 10 M





Legend

- The Knap of Howar
- Late Neolithic Tombs
- Early Neolithic Tombs
- Late Neolithic Settlements
- Tide Rips
- Tidal Stream (ebb)
- Tidal Stream (flood)
- 0--20m
- -20- -50m
- -50m+



Legend

- The Knap of Howar
- Late Neolithic Tombs
- Early Neolithic Tombs
- Late Neolithic Settlements
- Deep water fishing
- Tide Rips
- Tidal Stream (ebb)
- Tidal Stream (flood)
- 0--20m
- Cereal Production
- -20- -50m
- -50m+
- Shellfish Gathering
- Red deer hunting
- Inshore fishing
- Cattle and Sheep
- Bird hunting
- Pigs

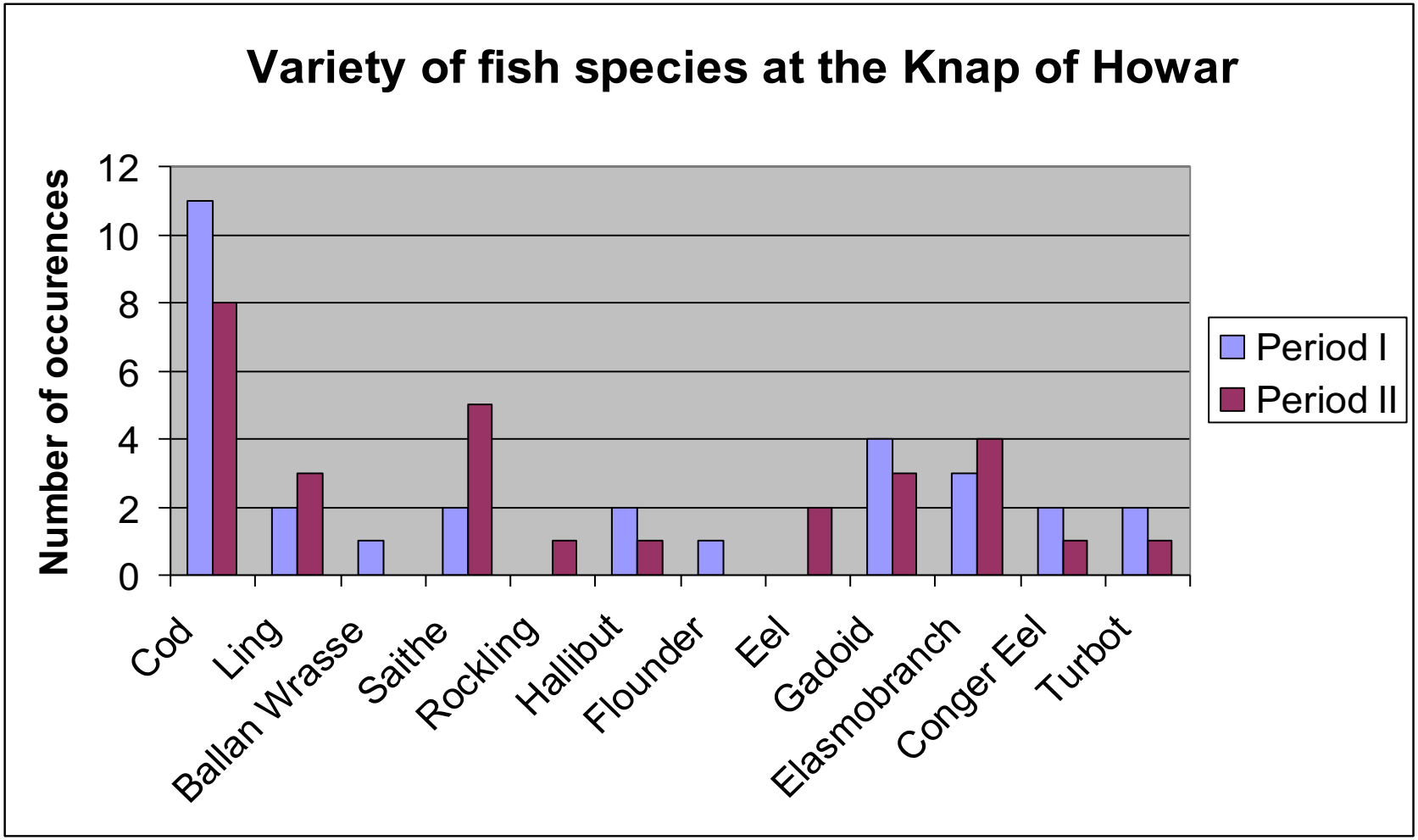
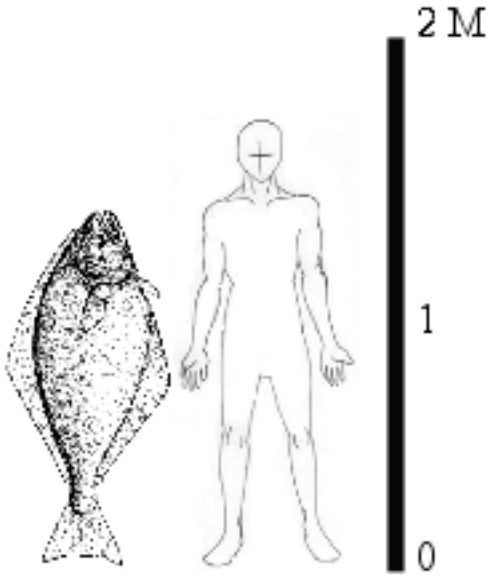


Figure 6: Graph to show variety of fish species and number of occurences by context at the Knap of Howar (after Wheeler 1983)


2 M
1
0