Anglo-Saxon Fish Remains from Lyminge, Kent

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A large assemblage of fish remains were recovered during excavations at Lyminge, Kent. The site is believed to be dated to the mid Anglo-Saxon period and may be connected to the nearby Anglo-Saxon monastery. Large amounts of fish remains from Anglo-Saxon periods are rare, especially before the late 9th and 10th centuries which makes this assemblage particularly interesting in light of recent research (Reynolds *in prep*.). Fish remains have been found on other archaeological sites throughout the mid to late Anglo-Saxon periods, but these have tended to be at *emporia* and in small amounts. The only other sites to have revealed substantial amounts of fish bone are the multi-phase site of Flixborough, Lincs. and the mid to late Anglo-Saxon settlement at Bishopstone, East Sussex. Both these settlements demonstrate elite religious and secular characteristics, thus emphasising how important it is to consider social factors when looking at Anglo-Saxon fishing.

Methods

Fish remains have been recovered from the 2008 and 2009 excavation seasons from hand-collection, dry sieving and environmental samples. This report only concerns itself with the 2008 material. The hand-collected and dry-sieved material were combined together with all other faunal remains and were picked out by the author. While over 50 environmental samples were taken only 12 have so far been analysed so the analysis of fish remains is not complete. Despite this we can still begin to see that the fish remains from Lyminge are very interesting and important.

The remains were studied as part of the author's masters dissertation and the material is still being studied as part of the author's doctoral thesis. The material was studied at the University of Nottingham using the Bioarchaeology reference collection alongside the author's personal one. The material was recorded using the York System (Harland et al., 2003). As part

of this 18 cranial elements and vertebrae are systematically recorded to family or species level when possible. Cranial elements are sided, zoned and measured when prompted by the system. Taphonomic alterations such as burning or acid etching suggesting digested bone were noted when present as well as any butchery marks.

The analysis of fish remains is complicated by the fact that not all families can be identified to species nor do all species have the same number of identifiable bones. For instance, flounder and plaice are both flatfish and are very difficult to separate. A key has been developed to help in differentiating between the two (Wouters et al., 2007) but an extensive reference collection is recommended. Every effort was made to try and identify the bones to species but this was not always possible. Other species such as gurnard are easily identifiable because of the textured surface of cranial elements thus making this species more easily identifiable.

Results

A total of 4560 fish remains have been recovered so far, of this 1747 (38%) were identifiable to family or species level. The species and quantities are given in table 1. Table 2 shows the proportion of each species by method of collection.

Species	Hand-collected/ dry sieved	Environmental Samples	Total
Anguilla Anguilla (eel)	3	241	244
Clupea harrengus (herring)	9	88	97
Clupeidae (herring family)	0	6	6
Conger conger (Conger eel)	4	1	5
Gadidae (cod family)	91	6	101
Gadus morhua (cod)	576	16	588
Heterosomata (flatfish order)	11	0	11
Labrus bergylta (ballan wrasse)	7	3	10
Melanogrammus aegelfinus (haddock)	11	0	11
Melanogrammus aegelfinus?	1	0	1
Merlangius merlangus (whiting)	57	57	114
Pagellus bogaraveo (red sea bream)	97	34	131
Perciforme (perch order)	2	0	2
Pleuronectidae (plaice/flounder)	128	15	143
Pleuronectidae?	2	0	2
Rajdae (ray family)	4	14	18
Scomber scombrus (Atlantic mackerel)	46	39	85
Scophthalmus maximus (turbot)	1	0	1
Scophthalmus maximus?	1	0	1
Sea Bream Family	1	0	1
Sea Bream Family?	9	0	9
Seabass Family	6	0	6
Trachurus trachurus (horse mackerel)	75	67	140
Trachurus trachurus?	2	0	2
Trigilidae (gurnard family)	15	4	18
Total	**1159**	**591**	**1747**

Table 1. Quantity of fish species from Lyminge recovered from hand-collected/dry sieved and environmental samples.

Species	Hand-collected/dry sieved %	Environmental Samples %
Anguilla anguilla	1	99
Clupea harrengus	9	91
Clupeidae	0	100
Conger conger	80	20
Gadidae	94	6
Gadus morhua	98	2
Heterosomata	100	0
Labrus bergylta	70	30
Melanogrammus aegelfinus	100	0
Melanogrammus aegelfinus?	100	0
Merlangius merlangus	50	50
Pagellus bogaraveo	74	26
Perciforme	100	0
Pleuronectidae	90	10
Pleuronectidae?	100	0
Rajidae	22	78
Scomber scombrus	54	46
Scophthalmus maximus	100	0
Scophthalmus maximus?	100	0
Sea Bream Family	100	0
Sea Bream Family?	100	0
Seabass Family	100	0
Trachurus trachurus	53	47
Trachurus trachurus?	100	0
Trigilidae	84	22

Table 2. Proportion of species from each method of collection at Lyminge.

The different sorts of taphonomic alterations noted are presented in table 3.

	Crushed	Burning	Calcinated
Clupea harengus	67		
Gadidae		1	
Gadus morhua		1	1
Merlangius merlangus		1	
Pleuronectes flesus/Pleuronectes platessa	3		
Grand Total	70	3	1

Table 3. Taphonomic alterations found on the fish remains from Lyminge.

No butchery marks were found on any bones at Lyminge. The high numbers of crushed herring vertebrae came from deposits identified as cess pits and are direct evidence for the consumption of these fish. Fish are unlikely to have been cooked over an open fire so the small numbers of burnt bone were found which may come from rubbish being swept into hearths.

During the assessment of the animal and bird remains alongside the analysis of the fish remains it was noticed that those deposits which contained high numbers of fish remains contained very few bird remains. Some heavy fish deposits contained no bird remains at all and the opposite situation was also observed where deposits were made up entirely of bird no fish bones were present. In the cases of cess pits this is understandable as small fish bones may easily be swallowed but bird bones less so, but in the case of bigger fish the disposal of their bones is more likely to be table waste, where like birds the flesh is cooked on the bone and then eaten. Fish may also be filleted prior to cooking but the disposal of these bones could be with other butchering waste or kitchen waste which is likely to also contain bird bones. This separation of bird and fish bone in deposits was also noted at Bishopstone (Reynolds, 2008) and deserves further attention. The separation of bird and fish bones may shed some light on the attitudes and perception of these two different animals whose levels of consumption have varied considerably.

Discussion

What is immediately evident is that the assemblage is entirely dominated by marine species, with only a very small number of freshwater species (cyprinid and perch). Eel is the only migratory species.

As expected, the vast majority of eel and herring came from the environmental samples. If these samples had not been studied the assemblage would have been very unrepresentative of what species of fish were consumed. Two of the environmental samples came from features interpreted as cess pits, and the herring and eel within these two features did show evidence of being crushed from passing through the digestive tract. The remainder of the samples have the potential of revealing many more eel and herring.

Eel is very common on mid to late Anglo-Saxon sites and given the site's proximity to the coast and its location within the Elham valley, eel is likely to have been quite abundant. The place-name Elham in Old English means the homestead or village where eels are found (Mills, 2003) and though its first record is not till the Domesday Book it is likely that this area was known and referred to as being highly populated with eels (Reynolds *in prep.*). Eel could have been caught in rivers using baskets or in V-shaped traps that would have caught the females as they travelled downstream. These sorts of traps have been found on several estuaries in England such as the on the River Thames and along the Blackwater Estuary (Strachan, 1998; Cowie and Blackmore, 2008), though none have yet been found in southern Kent. Many of these weirs weir built some time in the mid Anglo-Saxon period and continued to be used for several hundred of years. The quantity of raw materials and labour required suggests that these weirs were the property of elites but also had an impact on peoples memory of them but also had an impact on peoples perception of their location and the surrounding landscape

(O'Sullivan, 2003). Weirs, like fish also appear in many Old English place-names (Reynolds, *in prep.*). Many of the species found such as the flatfish, brill/turbot, herring and whiting can be caught in estuaries and inshore waters at different times of year. Some of the less significant species such as the conger eel, brill/turbot and haddock may be accidental catches, however it seems very clear that some of the other species were caught more regularly.

Two species stand out, the red sea bream and the cod. Red sea bream has not been found on any other Anglo-Saxon site and tends to be found further west along the English coastline as they prefer rocky shorelines (Hamitlon-Dyer *pers. comm.*). All the remains of red sea bream came from one oval pit (feature n°532) and the skeletal element representation suggest that complete fish were deposited. So far these remains have come from hand-collection or dry sieving but during the recent sorting of the environmental samples it was noticed that more red sea bream awaits quantifying. This deposit was largely made up of red sea bream, some horse mackerel was also present and very little mammal remains and no red sea bream was found anywhere else on site. Further post-excavation analysis may reveal if this deposit was sealed very quickly. A deposit that was sealed quickly may suggest different situations, these red sea bream may have been consumed at one event or were disposed of without being eaten, perhaps because they were an accidental catch.

Cod is found on several archaeological sites of the mid and late Anglo-Saxon periods but these tend to be in small numbers with the exception of the site of Bishopstone where over 400 cod remains were identified (Reynolds, forthcoming). At Lyminge both cranial and vertebrae were identified so the fish were brought whole to the site, most likely fresh. Using visual comparisons it is possible to see that the bones came from specimens of different sizes (Plate 1).

It is possible to reconstruct the live size of cod by taking measurements on the dentary and pre-maxilla and put into a regression equation (Jones, 1991). The results of these are shown in figures 1, 2, 3 and 4. All other cranial elements and vertebrae were placed into size categories by making a visual comparison with a modern reference specimen. These are shown in figure 5.

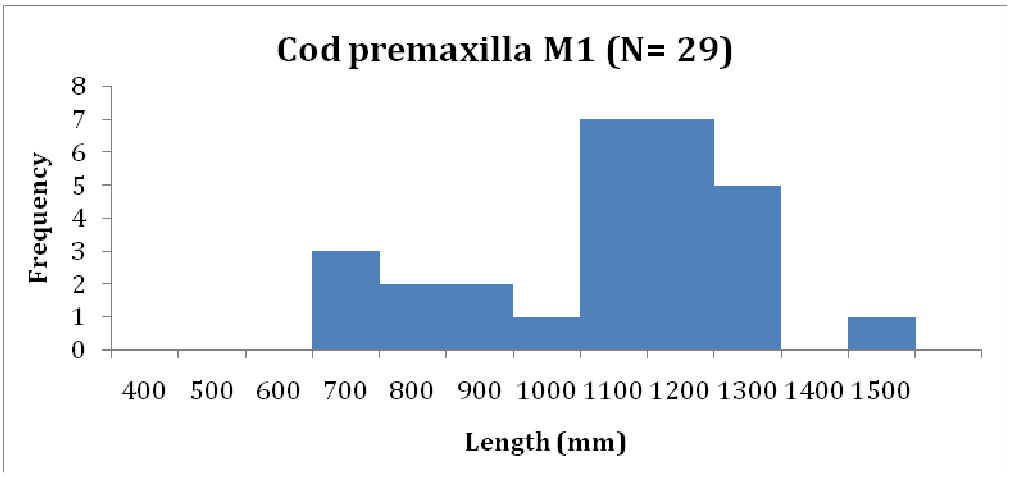

Figure 1. Reconstructed cod lengths from Lyminge using the first premaxilla measurement.

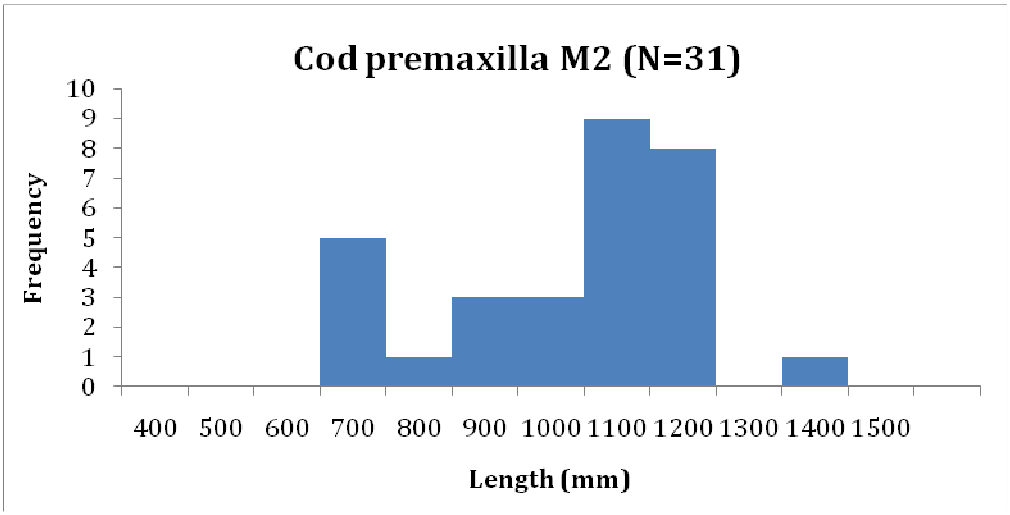

Figure 2. Reconstructed cod lengths from Lyminge using the second premaxilla measurement.

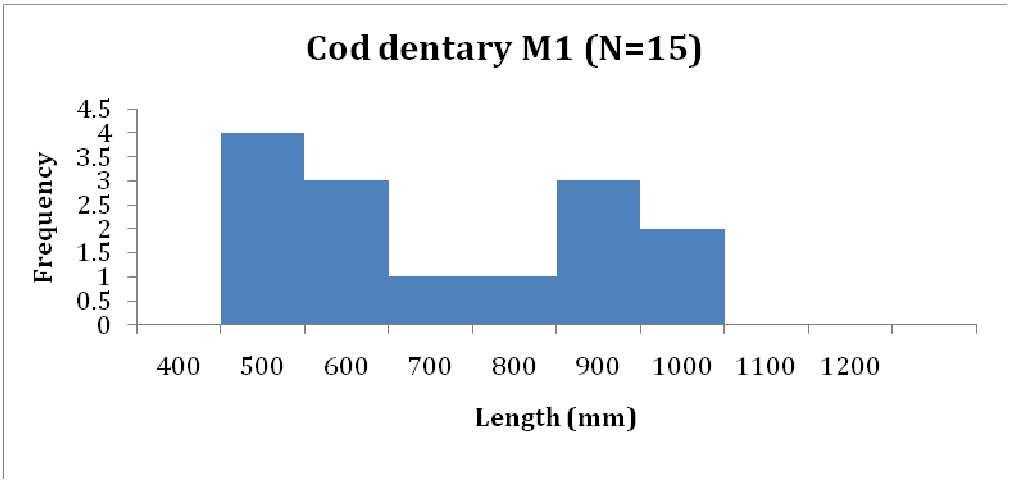

Figure 3. Reconstructed cod lengths from Lyminge using the first dentary measurement.

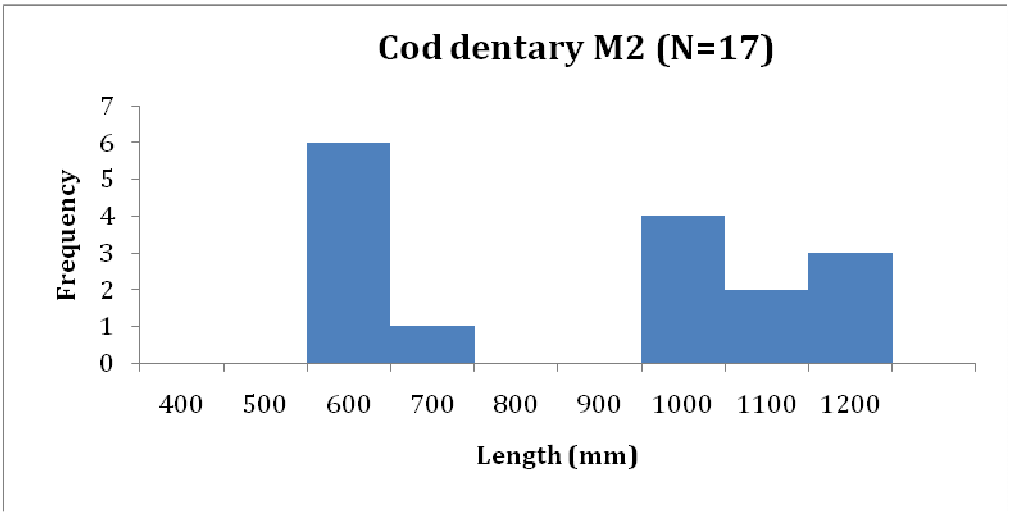

Figure 4. Reconstructed cod lengths from Lyminge using the secondary dentary measurement.

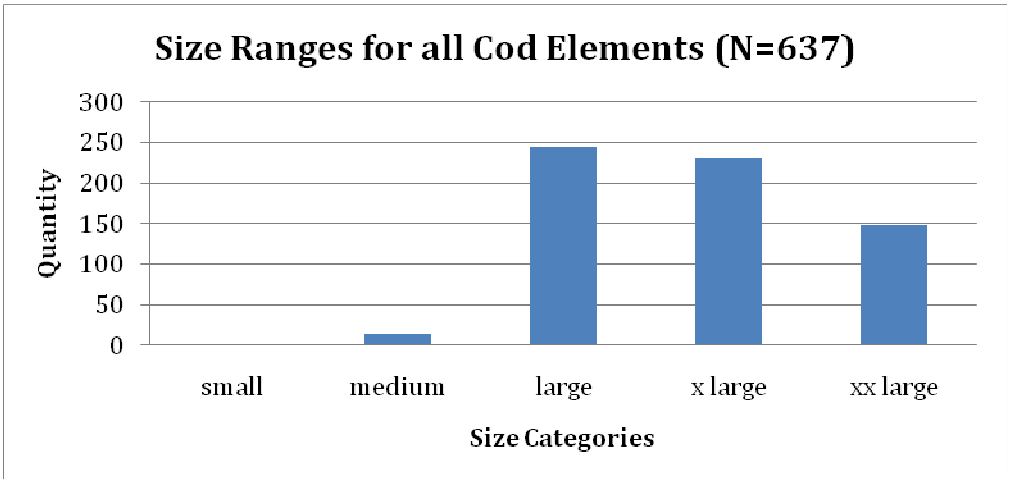

Figure 5. Ordinal size ranges for all cod elements from Lyminge. (small=15-30 cm, medium=30-50 cm, large=50-80 cm, very large=80-100 cm, extremely large=>100 cm)

Plate 1. Parasphenoid from cod demonstrating the range of sizes encountered.

A significant number of pre-maxilla and dentary were available for measuring and the results show the presence of rather large cod. Both measurements indicate that most elements came from fish that were of sizes around 100- 120 cm with a much smaller peak between 60-70 cm (Figure 1 and 2). There is hardly any difference between the sizes estimated from either

measurement. The dentary measurements on the other hand paint a slightly different picture; from the first measurement the first peak is between 40-50 cm and two smaller peaks at 50-60 cm and 80-90 cm (Figure 3 and 4). The second measurement is a slight variation of the first with a high peak at 50-60 cm and a second majority spread out between 90-110 cm. Differences between the results of each measurement are likely to happen because the degree of accuracy when taking the measurement can vary. The difference in the peaks between premaxilla and dentary measurements on the other hand may be due to the survival of each element, double the amount of premaxilla to dentaries were measurable.

The ordinal size categories show the largest number fall in sizes between 50-80 cm, but there are still significant quantities of elements that are bigger than 80 cm (Figure 5). This difference may be down to the author underestimating the size of the bones visually as the reference collection does not hold a reference specimen over 50 cm. Therefore the differences between the estimated sizes from both premaxilla and dentary may not be so odd.

Unfortunately the sizes of cod remains from other Anglo-Saxon sites are not available, apart from Bishopstone thus making it very hard to compare the results from Lyminge with other contemporaneous sites. The cod found at Bishopstone was slightly smaller than those from Lyminge but not by very much. The majority of specimens at Bishopstone were between 80 and 90 cm which still places them far ahead of today's standards. Cod can be caught in inshore waters during the winter but given present cod stocks and levels these tend to be smaller cod and it is very difficult to establish if during the mid Anglo-Saxon period large cod like those found at Lyminge would have been available in coastal waters or whether these would have had to be caught further out at sea. Sailing in open waters is more treacherous and the Channel and North Sea are notorious for sporadic changes in weather conditions and unforgiving winters. Extensive cross-channel trade existed

between Frankia, Frisia and England during the mid Anglo-Saxon period but it is generally understood that travel across the Channel was limited or non-existant during the winter months (Lebecq, 1983; McCormick, 2001). It would seem therefore unlikely for fishing in deeper waters to have taken place during the winter.

The presence of these large cod may have a more complicated significance. During the later medieval period there is evidence for fishing to be practiced as a sport by the elite, like hunting (Hoffmann, 1985). It could be that fishing or catching large fish from the sea was viewed in a similar way, an activity for the elite demonstrating their strength and power. Fish consumption has not always been constant in England and there is very little evidence for it during the Iron Age and early Anglo-Saxon period. There is also very little evidence for the exploitation of wild mammals and birds during these periods, but the situation begins to change during the mid Anglo-Saxon period when wild mammals and birds begin to appear on elite settlements, both religious and secular and a whole host of other archaeological remains also appear at the same time that lend support to appearance of hunting (Sykes, 2010). It is also at this time that marine fish begin to appear on sites with the greatest quantities on elite settlements. While the number of elite settlements with fish remains is small, largely due to older excavations not bulk sieving samples it seems likely that the fishing and consumption of large fish was practiced by elites during the mid Anglo-Saxon period. The influence and nature of elite fish consumption is complex and needs further enquiry.

Conclusions

The early stages of analysis of the fish remains from Lyminge are proving very interesting and are demonstrating that we still know very little about the nature of fishing and fish consumption during the Anglo-Saxon periods. So far the assemblage is dominated by marine fish, in particular cod that have come from large specimens. Larger cod may have been more common in the

past but this means they would have been even harder to catch and this could have great significance for how these creatures were seen and understood. The continued study of this assemblage and its interpretation within its wider context may help us understand much more about early medieval fishing.

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