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MAGISTRATES COURT, NORWICH

THE FISH REMAINS

by Alison Locker

Introduction

During excavations at the site of the Magistrates Court 6,646 fish bones were found in medieval deposits. These were retrieved by sieving, which ensured that even the smallest bones were recovered.

The following species were identified; roker (*Raja clavata*), Elasmobranchs, eel (*Anguilla anguilla*), herring (*Clupea harengus*) salmon (*Salmo salar*), trout (*Salmo trutta*), smelt (*Osmerus eperlanus*), Cyprinidae, chub (*Leuciscus cephalus*), roach (*Rutilus rutilus*), cod (*Gadus morhua*), haddock (*Melanogrammus aeglefinus*), whiting (*Merlangius merlangus*), Gadoid, Triglidae, Percoid, scad (*Trachurus trachurus*), mackerel (*Scomber scombrus*), plaice (*Pleuronectes platessa*), flounder (*Platichthys flesus*), and sole (*Solea solea*).

Some bones were not specifically identifiable and had to be assigned to groups, ie Cyprinidae, Gadoid (cod family), Triglidae (gurnards), Percoid (perch like) and flatfish (see tables). Certain bones have no specifically identifiable features, such as fin rays, branchiostegals etc, and others were heavily fragmented, these could only be listed as unidentifiable fish. Invariably a substantial proportion have to be categorised in this manner, 33% from this site.

The tables indicate the total number of bones from each species in each context, (an archive of individual identifications is available from the author and the excavator). Considering the material spans the late 10th to the 15th centuries the tables suggest a great degree of homogeneity in the relative proportions of the dominant species. Because of this apparent homogeneity observations about the fish apply to all phases unless otherwise stated. Herring is the most important, followed by cod, whiting and eel. A few burnt vertebral centra of herring and eel were found in most contexts.

Geographically the most likely source for the marine fish is Great Yarmouth which lies approximately 17 miles to the east. Wheeler and Jones (1976) examined a large sample of medieval fish from Fuller's Hill, Great Yarmouth to which comparison will later be made. The fish bone from two other sites in Norwich (Jones 1983 and Jones and Scott 1984), and Baker Lane, Kings Lynn (Wheeler 1977) is also compared with those from the Magistrates Court.

Habitats and Fishing Methods

The roker and other elasmobranchs are probably under represented since their skeletons are composed of cartilage, therefore little trace of them remains in archaeological deposits except for dermal denticles, teeth, and occasionally undistinguished vertebral centra. The roker is a common ray in shallow water, on

muddy, sandy and gravelly bottoms, especially between 10-60 metres, they can be caught on lines.

Other inshore, bottom dwellers are the flatfish, the flounder is unique in its ability to enter fresh water by way of river mouths, (Wheeler 1983, 121). Certain flatfish are especially active on the shoreline and in intertidal pools during immaturity. Both plaice and flounder are common in depths up to 50 metres, while the sole is commonly found up to 100 metres. These three species can be caught on lines, and their habit of moving up on to the shoreline to feed means they were often caught in shoreline traps called 'kiddles', this V-shaped construction had a holding box which trapped the fish on their return to deeper water, (Wheeler 1979, 80). Another type of trap using staked nets called a 'sea hedge' was also employed (Wilson 1973, 27), these methods became an important adjunct to coastal fishing.

Although the gurnard remains could not be specifically identified, since they were fragmented, these may well belong to the most common gurnard, the tub gurnard (Trigla lucerna). Another bottom dweller in inshore waters, the tub gurnard can be caught by hook and line. This fish is good to eat, although as it is represented by only two fragments in phase 1 its presence may be incidental.

The only other bottom dweller found was haddock, caught on lines they are found close to the sea bed in depths of 40-300 metres. Haddock are migratory, and off the East Anglian coast would be found in inshore shallow waters during the winter, moving to deeper water in the summer. Only 11 haddock bones were identified from all phases, so there is little evidence for a seasonal inshore winter fishery based on haddock.

Moving from those fish which are found close to the sea bed to those generally found in mid water, cod live from the shoreline to depths of 600 metres, and locally would move into shallow inshore waters in winter, especially the younger fish. Caught on lines cod may have been the main object of a inshore winter fishery, in which haddock were also sometimes taken.

The whiting inhabits shallow water (usually 30-100 metres) all year round, living in mid water and sometimes on sandy and muddy bottoms. This species also formed an important fishery, based on lines, whiting can also be caught in beach seines, (Wheeler and Jones 1976, 218).

The sizes of cod and whiting were estimated by using the cod dentary and premaxilla measurements of Wheeler and Jones (1976), making comparative measurements with modern specimens, Colley pers comm. and by comparison with fish of known size at the British Museum, Natural History. From 11 measurements on cod a size range of 40-100 cms total length suggests fairly small fish, (the average size today is about 120 cms), which is consistant with the suggestion of an inshore fishery. A range of 29-36 cms (based on 8 measurements) suggests the whiting were of average size.

With regard to fish that are primarily pelagic in habit and form large shoals herring were easily the most numerous species in all phases, forming 47% in phase 1, 43% in phase 11, and 31% in phase

111. These fish would have been caught with very fine meshed floating nets. The large number of obligatory fish days in the medieval period helped the herring industry to prosper. During their yearly migration the herrings reached the seas off East Anglia while they were large, fat and oily. So in this area the fishery was very intensive (Wilson 1973, 33). This autumn fishery using traditional drift-nets was still carried out from Great Yarmouth and Lowestoft in the nineteenth and early part of the twentieth century, (Wheeler and Jones 1976, 222).

The mackerel is also a pelagic migratory fish, found in large schools moving northwards, and inshore in the summer, the reverse taking place in winter, (Wheeler 1978, 326).Mackerel can be caught both in nets and by hook. Similarly the scad is found swimming near the surface in large schools, typically offshore, and can be caught in floating nets. Scad were only found in Phase 1 (9 fragments), and mackerel were found in small quantities (26 fragments in total) in all three phases.

Some smelt form purely fresh water populations, but most frequently they are coastal/estuarine fish, found in large schools, and only enter fresh water to spawn (Wheeler 1978, 90). The size of the vertebral centra suggested some individuals (eg in context 531B) were over 20 cms in total length, which indicates a coastal/estuarine source for these fish, since fresh water populations do not usually achieve this size. These fish were caught in fine nets, and an important tidal fishery for smelt was prosecuted in the Thames (Wheeler 1979, 48), there may have been a similar fishery in the estuary of the Yare.

The contribution of freshwater fish is low, from phases 1, 2 & 3 they form 4% of the total, of which 3.5% are eel most probably caught in their fresh water stage. The relative proportion of eel is exaggerated by the large number of vertebral centra for each individual compared with other fish. However eels were an important resource in the medieval period,they could be stored live in ponds, trapped in 'eel-bucks', (wicker baskets set across a river which caught the migrating fish on their way to the sea, Wheeler 1979, 61), speared, or taken on a hook.

Salmon was only identified from a vertebral fragment, and small trout from 3 vertebral centra, neither species seems to have been of much importance, and were probably caught by rod and line.

Some small cyprinid bones were found in pit fill 3111 in phase 1, and also in 2003, one roach and two chub pharyngeals were identified, these were small immature individuals, the roach compared well with a modern specimen of total length 86mm, and the chub pharyngeal from 311' was under 100mm in total length. Other cyprinid bones were also from small individuals, and although not specifically identifiable could also belong to roach and chub. Cutting (1962) states 'Throughout the Middle Ages, and for long after, fresh fish was mostly of fresh water origin and very expensive. Practically every species inhabiting river, ditch and millstream, even the tiny minnow, was eaten'. However these young fish, especially the chub which tends to be rather bony for eating, seem more likely to be an incidental catch.

Methods of Preservation

The lack of swift, cheap transport during the medieval period meant that preserved fish was an essential part of the diet. Until the 13th century herrings were salted, ungutted and did not keep for very long. However in the 13th century the method of smoking was developed, the fish were soaked for a long time in brine, smoked and then barrelled. In the 14th century a dutch method was also used, the herrings were gutted, soaked in brine for fifteen hours, then barrelled in roms between layers of salt. Both methods ensured a long storage life, (Wilson 1973, 33).

White fish such as whiting and cod were often salted or dried, and were a useful staple with the herring through Lent and the winter months. As a diet it was no doubt rather tedious, and many herbs and spices were used to add some variety. A 'green sauce' was recommended by Neckam which included sage, parsley, costmary, dittany, thyme, garlic and pepper, and other green herbs, (Wilson 1973, 40).

Evidence from the presence of many skull bones suggests that some larger fish (eg cod and whiting), which often had their heads removed at the dockside during processing prior to salting and drying may have been purchased whole. Knifecuts associated with beheading and splitting the carcase were absent, except for a knifecut on a gadoid vertebral centrum from 1117. Articulating herring vertebral centra, indicating single individuals (at least six), and nine articulating vertebral centra from a single cod were found in 1118. These articulating vertebral centra were very well preserved, and where they were still seated on soil, in their original position, it was evident that this matrix was very organic.

Comparison With Other Sites

Two other sites with medieval deposits in Norwich also yielded a number of fish bones. Although the number of fish bones recovered was much lower than that from the Magistrates Court the results were very similar, in the consistant preference for certain species. At Alms Lane (Jones and Scott 1984), which became an intensively occupied area of the town, over 3000 fish bones were identified. Jones and Scott were able to examine domestic food refuse from separate tenements where some changes in the method of refuse disposal were detected. Secondly the waterfront site at Whitefriars Street (Jones 1983) where deposits containing refuse from a number of households were sampled. Herring was the dominant species at both these sites, whiting and cod were also important. Jones also suggests an East Anglian source for the marine fish, eel was the only immediately available local fish, caught in fresh water in large numbers. The other marine species found less frequently were similar at Alms Lane and the Magistrates Court, with the exception of ling *Molva molva* and stickleback *Gasterosteus aculeatus* found at Alms Lane and smelt at the Magistrates Court. Another similarity in the fish bone from these three Norwich sites is that exclusively freshwater fish seem to be unimportant, the species identified included some cyprinids and pike.

Further comparison can be made with the fish bone from Fuller's Hill, Great Yarmouth, (Wheeler and Jones 1976), since the fish are likely to have come from the same fishing grounds. A similar

range of species was found, with a greater variety of flatfish, and a few ling bones. Mackerel and haddock occurred more frequently at Fuller's Hill, herring and cod were also very important, the cod being within the same size range as those from the Magistrates Court.

The fish bones identified from 13th to 14th century deposits at Baker Lane, King's Lynn (Wheeler 1977), were all hand picked which created a bias in favour of the larger specimens, no herring or other small species were recovered at all. Measurement of cod (the predominant species), suggested two size groupings, approximately 60-80 cms, and 88-137 cms. This led Wheeler to suggest that the smaller group might represent a local winter inshore fishery, while the larger specimens could be imported or the catch of a distant water fishery. The estimated size of the cod from the Magistrates Court is in keeping with the interpretation for the smaller inshore group.

Conclusion

In conclusion the fish from the medieval site of the Magistrates Court are dominated by marine fish especially herring, for which a comprehensive fishery was based at the nearby port of Great Yarmouth. Also of importance was a 'white fish' fishery based on cod and whiting. It is suggested from the size of the cod that this may have been a winter inshore fishery. Shoreline activities based on trapping and netting contributed many small flatfish and smelt. Although eel was identified from many contexts fresh water fishing for other species does not appear to have been of much importance. Perhaps the distance to Great Yarmouth did not exclude the transport of some fresh whole marine fish as has also been been suggested by Jones and Scott (1984).

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MAGISTRATES COURT, NORWICH
FISH: TABLE 1

Phase 1 (1&2)
(Phase 1 (1) = ?Late 10th - Early 11th century)
(Phase 1 (2) = Mid 11th century)

	1043	1093	1095	531A	531B	1159	3111	3113	3114	920	
ROKER	3	–	1	–	–	1	–	–	–	–	5
ELASMO.	–	1	–	4	1	–	–	–	–	–	6
EEL	66	33	6	27	14	4	13	4	2	1	170
HERRING	65	48	30	529	1191	53	1	–	11	–	1928
TROUT	1	–	–	1	–	–	–	–	–	–	2
SMELT	5	–	–	–	15	1	–	–	–	–	21
CYPRINID	–	–	–	1	–	–	6	–	–	–	7
CHUB	–	–	–	–	–	–	1	–	–	–	1
ROACH	–	–	–	–	–	–	1	–	–	–	1
COD	2	1	–	25	65	–	–	–	–	–	93
HADDOCK	1	2	1	3	–	–	–	–	–	–	7
WHITING	12	3	4	12	15	–	–	–	–	–	46
GADOID	29	6	6	12	57	–	–	–	–	–	110
GURNARD	–	–	–	–	2	–	–	–	–	–	2
SCAD	–	3	–	2	4	–	–	–	–	–	9
MACKEREL	1	–	–	2	4	–	–	–	–	–	7
PLAICE	1	–	–	–	33	1	–	–	–	–	35
FLOUNDER	–	1	–	–	–	–	–	–	–	–	1
SOLE	1	–	–	–	–	–	–	–	–	–	1
FLATFISH	–	1	2	10	9	–	–	–	–	–	22
UNIDENT	146	136	3	441	810	64	12	10	–	1	1623
TOTAL	333	235	53	1069	2220	124	34	14	13	2	

TOTAL = 4097

ELASMO = ELASMOBRANCH

CONTEXTS

Phase 1 (1) 1043 = Pit 1042
1093 = Pit 1092
1095 = Pit 1094
Phase 1 (2) 531A = Pit 530
531B = ...
1159 = Wickerlined pit 1164
3111 = Pit 3092
3113 = ...
3114 = ...
920 = ...

MAGISTRATES COURT, NORWICH
FISH: TABLE 2

PHASE 11 (1&2)
(Phase 11 (1) = First half of 12th century)
(Phase 11 (2) = Second half of 12th & 13th century)

	1118	719	1117	1119	1120	1122	503	814	1064	1090	1032	2081	
ROKER	–	–	5	–	–	–	–	–	1	–	–	–	6
ELASMO	–	–	3	–	1	–	–	–	–	2	–	–	6
EEL	–	4	8	1	–	–	–	–	–	1	2	–	16
HERRING	104	93	102	1	26	13	91	1	24	3	35	2	495
TROUT	–	–	–	–	1	–	–	–	–	–	–	–	1
COD	10	3	12	–	3	1	1	–	–	–	5	–	35
HADDOCK	–	–	–	–	–	–	–	–	–	1	–	–	1
WHITING	–	3	8	–	1	–	10	–	–	–	–	–	22
GADOID	–	30	12	–	–	2	9	–	1	–	–	–	54
PERCOID	–	–	1	–	–	–	–	–	–	–	–	–	1
MACKEREL	–	1	2	–	–	–	1	–	–	–	–	–	4
PLAICE	–	3	2	–	–	–	1	–	–	–	1	–	7
FLATFISH	–	–	1	–	–	–	–	–	–	–	–	–	1
UNIDENT	13	22	205	9	24	–	95	1	69	16	47	4	505
TOTAL	127	159	361	11	56	16	208	2	95	23	90	6	

TOTAL = 1154

CONTEXTS

Phase 11 (1) 1118 = Lining of gully 562
719 = " " " "
1117 = Fill of gully 562
1119 = " " " " at interface with 1118
1120 = " " " "
1122 = " " " "
503 = Layer at street frontage
814 = Pit fill 370 at street frontage
Phase 11 (2) 1064 = Pit fill 1064
1090 = Pit fill 1061
1032 = Fill of gully 562
2081 = Floodwater deposit in stone building 2100

MAGISTRATES COURT, NORWICH
FISH: TABLE 3

PHASE 111 (1&2)
(Phase 111 (1) = c.1300 - c.1400)
(Phase 111 (2) = c.1400 - c.1450)

	390	466	271	2	TOTAL	2003
ROKER	1	-	-	-	1	-
ELASMO	2	-	-	-	2	-
EEL	52	-	3	-	55	30
HERRING	232	3	106	38	379	39
SALMON	1	-	-	-	1	-
SMELT	4	-	-	-	4	-
CYPRINID	-	-	-	-	-	6
CHUB	-	-	-	-	-	1
COD	-	-	6	1	7	-
HADDOCK	-	-	3	-	3	-
WHITING	25	-	-	-	25	4
GADOID	-	-	1	7	8	-
MACKEREL	15	-	-	-	15	-
PLAICE	10	-	10	-	20	-
FLOUNDER	2	-	-	-	2	2
FLATFISH	2	-	6	-	8	1
UNIDENT	397	-	230	53	680	102
TOTAL	743	3	365	99	1210	185

CONTEXTS

Phase 111 (1) 390 = Layer at street frontage
466 = Chalk surface
Phase 111 (2) 271 = Fill of post hole
2 = Layer at street frontage

Phase 11 (2) to 111 (2) 2003 = Deposit at base of cesspit