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Milk Street (City of London)

The Fish Bones

by Alison Locker

Introduction

A total of 529 fish bones was recovered by hand picking and sieving from four pits dated from the mid to late twelth century. The following species were identified; roker (Raja clavata), Rajidae (rays), eel (Anguilla anguilla), conger eel (Conger conger), herring (Clupea harengus), Salmonidae, smelt (Osmerus eperlanus), roach (Rutilus rutilus), chub/dace (Leuciscus cephalus/Leuciscus leuciscus), Cyprinidae, cod (Gadus morhua), haddock (Melanogrammus aeglefinus), whiting (Merlangius merlangus), Gadoid, hake (Merluccius merluccius), garfish (Belone belone), stickleback (Gasterosteus aculeatus), mackerel (Scomber scombrus), turbot (Scophthalmus maximus), plaice (Pleuronectes platessa), plaice/flounder (Pleuronectes platessa/Platichthys flesus), and flatfish. The family names and generalised groups such as Rajidae and flatfish have been used when specific identification was not possible. The term Gadoid refers to the cod family where it was not possible to be more precise.

The table shows the bone type identified for each species in each pit level.

Habitats and Fishing Methods

The species that would have been caught in fresh water include the eel, salmonidae, smelt, cyprinidae and stickleback. Eels were part of an important fishery in the Thames estuary as well as along the whole of the Thames (Wheeler 1979, 60, 140), the maturing eels start to move down river in November. Eel fisheries were traditionally found associated with watermills from the eighth century onwards (Wilson 1973, 29). Salmon (although they cannot always be reliably separated from trout the large size of these vertebral centra suggest they are probably salmon), was also once an important fishery of the Thames, although Wheeler (1979, 51) suggests that although salmon were common they may not have been especially abundant. As well as being taken on rod and line salmon were caught in wicker traps (salmon-bucks) stretched across the river as they ascended, the opposite arrangement the eel-buck, caught the maturing eels as they moved downstream (Ibid, 61). Roach are found in lowland rivers, and would have been caught by rod and line, however the stickleback and small cyprinids identified from pit 48 were hardly worth eating, and may represent accidental catches, possibly from netting.

Smelt are marine fish found in coastal waters and estuaries, they enter rivers to breed in fresh water or at the limit of tidal influence, (Ibid 151). Smelt formed a very important seasonal fishery in the Thames as early as the Roman period, smelt remains have been identified from a roman timber lined pit in Southwark (Jones 1978, 414). They would have been caught in fine meshed nets. Smelt fishing became so popular that by the seventeenth century protective measures had to be taken to prevent overfishing and the reduction of the spawning stock (Wheeler 1979, 48).

Exploitation of the shoreline close to the mouth of the Thames Estuary would have yielded several of the species identified, plaice and flounders could have been caught on lines or in shoreline traps called 'kiddles' which trapped the fish returning to deeper water after feeding on the shoreline, (Ibid 80). Other species found in shallow water include the roker, most common in depths of 10 - 60 metres (Wheeler 1978, 36), the turbot is found in shallow inshore waters from below the shoreline to 80 metres, it is common in the southern North Sea (Ibid 344), and is a valuable food fish that would have been caught on lines, as would the roker. The conger eel can be found on rocky shores as well as off shore and could have been trapped as well as caught on lines. It is not common today in the southern North Sea (Wheeler 1979 171), but may have been more common in the past.

Surface shoaling fish include herring, mackerel and garfish, the herring fishery was important by the time of the Norman conquest, and was a seasonal occupation as the herrings moved southwards from the Shetland Islands in June finally reaching the South coast (Wilson 1973, 27, 32). The smoking of herrings did not begin until the late thirteenth century, in the twelth century they would have been marketed pickled. Mackerel is an oily fish like herring, and can be caught in a variety of ways, including nets and by hook. Because of the high oil content mackerel tend to decompose quickly and if they could not have been marketed quickly would also have to have been pickled. However this species was only tentatively identified, but has been identified from roman deposits in Southwark (Jones 1978, 416). The garfish is not common in archaeological samples, and is an offshore species which comes inshore throughout the summer and autumn, (Wheeler 1978, 184). Although it is good to eat it may have been an incidental catch with herring on whose young it feeds.

The remaining species form what is termed a 'white fishery' and would tend to be the catch of a deeper water fishery, although the individual species are subject to a certain amount of migration depending on both the season and age of the fish. Cod was for a long time a staple fish and was marketed both fresh, dried and salted. Cod would have been caught on lines, to the south of it's range (which would include the southern North Sea) it is only found in shallower water during the winter (Ibid, 150). Haddock live close to the sea bed from 40 - 300 metres, and would have been caught on long lines, (Ibid 152). The hake is found in deeper water, 165 - 550 metres, and sometimes in shallower water during the summer, (Ibid 171). It lives near the bottom, and would also have been caught on long lines. Whiting are the most inshore of the four species, mainly living between depths of 30 - 100 metres (Ibid 153) and could have been netted as well as caught on lines.

Further information about the biology of the species identified can be found in Wheeler 1978.

Conclusions

In the twelth century the pollution that was so drastically to reduce the marine life of the Thames as a result of the population pressure in the City of London was probably not yet of any great importance. It was in the thirteenth century that London was really to expand as a more centralised administration centre (Trease 1975, 43). Up until the late Middle Ages there

were many compulsary fish days, these included Lent, all Fridays, Saturdays, and even Wednesdays until the early fiveteenth century, (Wilson 1973, 31), so fish was an important part of the medieval diet. All the species that have been identified from the Milk Street pits could have been caught in the area of the southern North Sea offshore from the Thames Estuary. A variety of fishing methods is evident, including the utilisation of species caught in the Thames itself, exploitation of the Thames Estuary and shoreline, and offshore fisheries probably operating from one of the ports such as Southend or Sheerness, catches could quickly be brought up river for marketing in the City. Such proximity would have increased the availability of fresh fish during this period, farther inland the slowness of transport meant that only dried, salted or pickled marine fish were available.

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References

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Milk Street: Fish Table

	Pit 201	Pit 36 3084	Pit 36 3077	Pit 36 3071	Pit 48 1036	Pit 48 1031	Pit 48 1030	Pit 48 1019	Pit 54 1025	Pit 54 1015	tl
Roker	–	–	–	–	–	–	1d	–	–	–	1
Ray	–	–	–	–	–	–	1d	–	–	–	1
Eel	–	–	–	–	–	3v	7v	1v	4v	–	15
Conger eel	–	–	1s	–	–	–	–	–	–	–	1
Herring	–	–	–	1s	1v	11v	9v	31v	7v	7v	
						2s	1s	5s	3s	2s	80
Salmonid	–	–	–	–	–	–	1v	1v	–	–	2
Smelt	–	–	–	–	–	18v	14v	–	6v	–	38
Roach	–	–	–	–	–	–	–	1s	–	–	1
Chub/dace	–	–	–	–	–	1p	2p	–	–	–	3
Cyprinidae	–	–	–	–	–	4v	–	1s	–	–	
								5v			10
Cod	1v	7v	1v	1s	–	4s	1v	2v	2s	–	
		1s	2s								22
Haddock	–	–	–	–	–	–	–	1v	–	–	1
Whiting	–	–	1s	–	–	–	1s	1s	–	2v	
							3v	9v			17
Gadoid	1s	5s	–	4s	–	3v	–	–	–	1s	
				1f							15
Hake	–	–	–	–	–	–	–	1v	–	1v	2
Garfish	–	3s	–	–	–	–	–	–	–	–	3
Stickleback	–	–	–	–	–	–	2s	–	–	–	
							1f				3
?Mackerel	–	–	–	–	–	–	1f	–	–	–	1
Turbot	–	–	1D	–	–	–	–	–	–	–	1
Plaice	–	–	1v	2v	–	–	1v	3v	–	1s	
			3s				1s	5s			17
Plaice/ flounder	–	1v	–	2v	1v	–	2v	–	3v	–	
					1s						10
Flatfish	–	–	1v	–	–	1v	–	1s	–	3v	
						1s					7
Unident	–	8	9	7	5	117	80	4	18	30	278
Total	2	25	20	18	8	165	129	72	43	47	529

Key:
v = vert
s = skull frag
D = dentary
d = denticle
f = frag
p = pharyngeal

1031
Herring; 1 maxillary
11 vert. centrum
1 skull frag
Eel; 3 vert. centra
?Smelt; 18 vert
Chub/dace; 1 small pharyngeal
?Cyprinid; 4 small vert.
Cod; 1 basioccipital
1 parasphenoid
2 frags parasphenoid
Flatfish; 1 skull frag
spine of 1st caudal vert. centrum
Small gadoid; 3 vert. centra
Unident; 52 frags
15 small vert.

1030
Roker; 1 buckler
Ray; 1 frag of dermal denticle
Salmonidae; 1 vert. centrum
Eel; 1 large vert
6 very small vert.
Herring; 1 maxillary frag
9 vertebral centra
?Smelt; 14 vert
Cyprinidae; frag of pharyngeal chub/dace type
1 small pharyngeal chub/dace
22 small ?cyprinid vert.
Cod; 1 vert. centrum
Whiting; 1 premaxilla same size as tl 360 mm spec
3 vert. centra
?Mackerel; 1 frag associated with fin ray
Small plaice; 1 operculum
Stickleback; 2 skull frags
1 fin ray
Unident; 1 supra clavicle
1 quadrate
3 skull frags
4 frags
9 fin ray/rib
2 vert frag
2 vert
40 very small vert, same size as the smelt & small cyprinidae vert.
13 fin rays
3 skull frags

1019
Herring; 1 operculum
1 maxillary
1 quadrate
2 ceratohyals
30 vert. centra
1 burnt vert. centrum
Salmonidae; 1 broken vert.
Eel; 1 vert. centra
Cod; 1 vert. centrum, possibly chopped
1 vert. centrum
Whiting; 6 vertebral centra
1 cleithrum
1 cervical vert. centrum

?2 cervical vert
Haddock; 1 vert. centra
Hake; 1 vert. centra
Roach; 1 small pharyngeal
Cyprinidae; 1 r premaxilla
5 vert. centra
Plaice; 1 1st anal pterygiophore
1 caudal vert
1 pharyngeal
3 skull frag
2 vert. centra
Flatfish; 1 small hymandibular
Unident; 3 small post cleithra, poss small gadoid
1 burnt vert. centra
55 fin ray/rib frags
7 small broken vert
2 vert.
45 frags

Pit 54
1025
Eel; 4 vert. centra
Herring; 7 vert. centra
1 cleithrum frag
1 operculum
1 skull frag
Smelt; 6 vert.
Cod; 1 vomer, width = 22.5 mm
1 r cleithrum, broken with three knifecuts at mid area
Plaice/flounder; 3 vert. centra
Unident; 6 vert
5 frags
5 fin ray/rib frags

1025A
Unident;2 frags

1015
Herring; 2 broken vert
5 vert. centrum
2 maxillary frag
Whiting; 2 vert
Hake; 1 caudal vert
Small gadoid; 1 cleithrum frag
Plaice; 1 hyomandibular
Flatfish; 2 caudal vert
1 eroded vert
Unident; 1 eroded vert
20 fin ray/rib frags
7 skull frags
1 small vert
1 frag

Pit 5
201
Cod; 1 vert. centrum
Large Gadoid; 1 cleithrum frag

Pit 37
3084
Garfish; 2 dentaries
1 premaxilla
Cod; 1 vert. centrum
1 broken vert. frag
3 vert. centra from a smaller specimen
1 cervical vert
1 parasphenoid
Plaice/flounder; 1 ultimate/penultimate vert. centrum
Plaice; 1 1st caudal vert. centrum
Gadoid; 1 ceratohyal
1 cleithrum frag
1 epihyal frag
1 frontal skull frag
1 skull frag
Unident; 6 fin ray/rib frag
2 frags

3077
Conger eel; 1 skull frag (operculum)
Cod; 1 vomer, width = 25.3 mm, slightly broken
1 vert. centrum
1 quadrate
Whiting; 1 r dentary; wheeler meas = 5.7mm, taken at foramen
meas at articulation = 5.2mm
Turbot; 1 left dentary
Plaice; 2 cleithrum frags
1 preoperculum
1 vert. centrum
Flatfish; spine of 1st caudal vert. centrum
Unident; 5 skull frags
4 fin ray/rib frags

3071
Herring; 1 maxillary
Cod; 1 cleithrum frag
Plaice/flounder; 2 vert. centra, large size
Plaice; 2 vert. centra
Large Gadoid; 1 cleithrum frag
2 skull frags
1 ectopterygoid
2 ribs
Unident; 1 post clavicle
2 skull frags
3 small frags

Pit 48
1036
Herring; 1 vert. centrum
Plaice/flounder; 1 vert. centrum
1 pharyngeal frag
Unident; 1 caudal vert.
2 skull frags
2 ribs