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Centre for Human Palaeoecology
Department of Archaeology
The King's Manor, York YO1 7EP

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**Technical Report: Fish remains from Dewars Granary Berwick
(DGB09)**

By

Jennifer Harland

Fishlab, Centre for Human Palaeoecology, Department of Archaeology, University of York,
The King's Manor, York YO1 7EP

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Jennifer Harland

Summary

A small assemblage of fish remains was recovered from a pit of medieval date. The remains were in moderate condition and were fairly fragmented. This sieved assemblage contained at least 15 fish, including herring, whiting, cod and other cod family fish. Sandeels were also found and may have been stomach contents from the larger fish. Most marine fish were probably caught near to Berwick. A few freshwater or migratory taxa were recovered, including eel, salmon and trout family and carp family, all of which could have been caught in local river systems.

KEYWORDS: BERWICK, FISH, ZOOARCHAEOLOGY, MEDIEVAL

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Fish remains from Dewars Granary, Berwick (DGB09)

Introduction and methods

A small assemblage of sieved fish remains was recovered from a pit at Durham Granary, Berwick, comprising 122 identified specimens and a further 217 unidentified fragments. The pit is of medieval date and probably dates to the 14th to 15th century or later.

This assemblage was recorded using the York System, an Access database utility designed for recording zooarchaeological assemblages. The fish reference collection held in the Department of Archaeology, University of York was used for identification. The recording protocol is fully detailed in Harland *et al.* (2003). Briefly, this entails the detailed recording of the 18 most commonly occurring and easily identified elements, termed quantification code (QC) 1. For each of these, the element, species, approximate size, side, fragmentation, texture, weight and any modifications are recorded in detail. Fish vertebrae (QC2) are recorded in more limited fashion, with counts, element and species recorded. Some elements are unusual and particularly diagnostic, like otoliths, and are fully recorded (QC4). The final category of material (QC0), includes elements not routinely identified as well as unidentifiable material. Elements that are from very unusual species, or that are butchered, are recorded in detail even if not from the QC1 category. Data analysis involved structured database queries, as well as manipulation using Excel.

Results

A total of 122 bones and otoliths were identified from an assemblage of 339 fragments. The assemblage was only in moderate condition, with a high degree of fragmentation and taphonomic alterations. Bone texture was mostly good, with some specimens of only fair or poor quality. Fragmentation was moderately high and no cranial elements were fully intact. A single cod family vertebrae was in very poor condition and was worn and rounded, suggesting a different taphonomic pathway for this specimen. Three bones were burnt: 1 herring vertebra and 1 haddock vertebra were calcined, and 1 unidentified fragment was charred. Three vertebrae were crushed when fresh, possibly because of chewing, including whiting, herring family and sandeel family. Eight specimens had concretions adhering to them, including 3 whiting bones, 3 herring vertebrae, 1 cod otolith, and 1 cod family vertebrae.

Despite the small size of the assemblage, a diverse range of taxa was recovered. In order of abundance, these included herring, whiting, sandeel family, haddock, cod family, cod, eel, saithe, herring family, carp family, smelt, salmon and trout family, and horse mackerel/scad. Herring was the most common, representing a third of all identified fragments, with whiting representing a fifth and cod a tenth. Sandeel family remains represented a tenth of the assemblage as well. Cod and cod family were represented by a few fragments, but other taxa were present at trace levels only.

Marine, freshwater and migratory fish were all recorded (taxa quantified in Table 1; latin names listed in Table 4). The marine taxa include the herring, the various members of the cod family including whiting, haddock, cod and saithe, as well as horse mackerel/scad. The sandeel family is also marine, but these fish are typically tiny and are eaten by several other taxa, including cod and numerous seabirds (Alderstein and Welleman 2000; Froese and Pauly 2010), so these remains may be stomach contents from any number of other animals. All of the marine taxa recovered could be caught in relatively shallow, inshore waters of the North Sea near to Berwick (Froese and Pauly 2010). The salmon or trout family vertebra was from a very large fish of 80-100cm total length, making it more likely to be salmon than trout. Today, the Tweed is known as a salmon and trout river, and this may have been the case in the past (Clayton 1997). The carp family are exclusively freshwater and the one identification

was likely from a fish caught in a local river system. Eels are migratory but were often caught in freshwater river systems, and again these were probably caught locally. The smelt are migratory fish and are small, so could have been stomach contents of larger fish, or may have been for human consumption.

Fish sizes are summarised in Table 2. Most fish were small, between 15 and 30cm total length. A few larger haddock, cod and whiting were also recorded, as was a large salmon or trout family fish of 80-100cm total length. The cod and haddock were at the small end of their size ranges, which probably indicates fishing inshore, shallow waters inhabited by younger populations. Fishing methods are difficult to reconstruct but could have included netting to catch herring and smaller cod family fish, long lining to catch cod and haddock, and possibly rod and line, netting or fish trapping to catch the salmon or trout.

The small quantity of remains makes it difficult to ascertain body part representation. For the more common taxa, both cranial and vertebral elements were found. No evidence of butchery or fish processing was recorded. The herring could have been eaten fresh or lightly preserved. The cod and cod family fish, on the other hand, are generally smaller than ones typically preserved, and thus were more likely to have been eaten fresh.

This pit was estimated to contain at least 15 fish (Table 3): 3 whiting, 2 cod, 2 haddock, and 1 each of eel, herring, carp family, smelt, salmon and trout family, saithe, horse-mackerel/scad and sandeel family. This was calculated based on the number of fragments, their sizes, sides, and fragmentation patterning, although this calculation is only a very broad estimate and likely under-represents the total number of fish represented here (Reitz and Wing 1999). The identifications that could only be attributed to herring family and cod family are probably from individuals identified to species, so these are not included in the minimum total.

Conclusions

This small pit produced a diverse assemblage of marine, migratory and freshwater fish. Herring and whiting were the most common taxa identified, with a few specimens of haddock, cod and saithe also recorded. Sandeels were present but were likely stomach contents from larger fish or birds. Eel and carp family remains probably represent fishing in local river systems, as does a single large salmon or trout family identification. The marine fish were generally small and were probably caught in inshore waters close to Berwick. At least 15 fish were found in this pit. These remains were most likely the result of a few meals. A couple of bones were burnt, either from the cooking process or from rubbish disposal.

This assemblage is fairly typical of the later medieval period. Marine fish were highly sought after in English sites from the 11th century, particularly cod, cod family and herring, while freshwater fish declined in popularity (Barrett *et al.* 2004a; 2004b). However, a few centuries later, there appears to have been a return towards consumption of a more diverse range of smaller, inshore marine fish at some sites like this one. Similar shifts towards consumption of locally caught, inshore taxa were revealed at Berwick Workspace (Harland 2007) and at Hartlepool Town Square (Harland and Parks 2008). These shifts through time are likely related to numerous factors, including changing demands for fish to meet dietary and fasting requirements, changing long-distance trade patterns in preserved fish, and changes in fishing methods.

Tables

Table 1: Summary of identified taxa and element type

Taxa	Cranium (QC1)	Vertebrae (QC2)	Other (QC4)	Total	% of identified bones
Eel		3		3	2%
Atlantic Herring	4	38	1	43	35%
Herring family		1		1	1%
Carp family	1			1	1%
Smelt	1			1	1%
Salmon & Trout family		1		1	1%
Cod	2	4	1	7	6%
Haddock	4	8		12	10%
Saithe		2		2	2%
Whiting	8	18		26	21%
Cod family		9		9	7%
Atlantic Horse-mackerel/ Scad		1		1	1%
Sandeel family		15		15	12%
Total identified	20	100	2	122	100%
Unidentified				217	
Total	20	100	2	339	

Table 2: Fish total length estimates

Taxa	<15cm	15-30cm	30-50cm	50-80cm	80-100cm
Atlantic Herring		4			
Carp Family		1			
Smelt	1				
Salmon & Trout family					1
Cod		2		1	
Haddock		1	3		
Whiting		7	1		

Table 3: Minimum number of fish

Taxa	Minimum number of fish
Eel	1
Atlantic Herring	1
Carp family	1
Smelt	1 (<15cm)
Salmon & Trout family	1 (80-100cm)
Cod	2 (1 x 15-30cm, 1 x 50-80cm)
Haddock	2 (1 x 15-30cm, 1 x 30-50cm)
Saithe	1
Whiting	3 (2 x 15-30cm, 1 x 30-50cm)
Atlantic Horse-mackerel/ Scad	1
Sandeel family	1
Minimum number of fish	15

Table 4: Latin and common names

Family	Latin name	Common name
Anguillidae	<i>Anguilla anguilla</i>	Eel
Clupeidae	<i>Clupea harengus</i> Clupeidae	Atlantic Herring Herring family
Cyprinidae	Cyprinidae	Carp family
Osmeridae	<i>Osmerus eperlanus</i>	Smelt
Salmonidae	Salmonidae	Salmon & Trout family
Gadidae	<i>Gadus morhua</i> <i>Melanogrammus aeglefinus</i> <i>Pollachius virens</i> <i>Merlangius merlangus</i> Gadidae	Cod Haddock Saithe Whiting Cod family
Carangidae	<i>Trachurus trachurus</i>	Atlantic Horse-mackerel/ Scad
Ammodytidae	Ammodytidae	Sandeel family

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