

## **The fish remains from the excavations at Castle Hill, Banff**

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### **Introduction**

The fish remains from the excavations at Castle Hill in Banff, derived from ten contexts, from areas that according to the DSR represent mainly midden and associated deposits which accumulated during 12<sup>th</sup> to 14<sup>th</sup> century activities.

### **Methods**

All the fish remains were examined and identified, where possible, to species level or to family group. Identification was done using a modern fish bone reference collection and standard guides (Watt *et al* 1997). Fish skeletal nomenclature follows Wheeler & Jones (1989, 122-123).

The sizes of the cod-fish species (Gadidae) were given an approximate size range. This was done by matching the archaeological material to modern fish skeletons of known size based on 'total body length'. Therefore, some elements were categorized as 'small' (15-30 cm), 'medium' (30-60 cm), 'large' (60-120 cm) and 'very large' (120-150 cm). The size of non-Gadoid species was also calculated by comparing the elements with modern specimens of known size, these were then given the category 'juvenile' or 'adult'.

The recording of the state of preservation of the bone was based on two characters: texture on a scale of 1 to 5 (fresh to extremely crumbly) and erosion also on a scale of 1 to 5 (none to extreme). The sum of both was used as an indication of bone condition; fresh bone would score 2 while extremely poorly preserved bone would score 10 (after Nicholson 1991).

### **Results**

The results of the identification of the fish remains are given in the catalogue as Table 1. The summary of fish species present per context and NISP (Number of Identified Species by fragment count) is given in Table 2.

The level of preservation of the fish bone was consistent, in terms of fragment size and condition. Bones were most frequently 40-70 % complete. Most of the material was quite eroded and fragile; their condition score was generally in the range of 7-8 indicating poor to extremely poorly preserved bone.

Thirteen taxa were identified consisting of eleven identified to species and two to family level. All these were from marine fishes, the main group identified was the Gadidae, of this the main species present were cod (*Gadus morhua*), ling (*Molva molva*) and haddock (*Melanogrammus aeglefinus*). Other species of this group identified were saithe (*Pollachius virens*), pollack (*Pollachius pollachius*) and whiting (*Merlangius merlangus*). Non-gadid species include plaice (*Pleuronectes platessa*), halibut (*Hippoglossus hippoglossus*), mackerel (*Scomber scombrus*), gurnard (*Gurnardus gurnardus*) and Skate (*Raja clavata*), vertebrae core from ray/skate/shark the Elasmobranchii family group were also recorded.

## Taxonomical analysis

The overall analysis was done by grouping contexts by 'area of activity' as described in the DSR (Stronach 2001) as no clear chronological sequence is available at the time of writing this report (see Table 2). Reference to Post medieval and late post-medieval periods in the Data Structure Report have been taken into consideration in the general discussion and reference to available historical accounts on the fishing practices during these periods, thus contributing to the interpretation of the fish remains recovered at this site.

All elements of the fish skeleton are present in the assemblage indicating that fish were brought whole to the site for processing although there were no visible cut marks usually associated with gutting and filleting on the elements recovered. Other possible processing may have included salting/drying and/or smoking.

Context 22 produced the greatest concentration of identifiable fish bone elements and these were from mainly gadids of which cod, ling and haddock were the main species present. A few elements from plaice, halibut, mackerel, thornback ray and gurnard were also recovered in this area.

The Gadidae are the cod-family fishes, in Scotland this group includes some of the well-known species including cod, ling, haddock, Pollack, saithe and whiting, which were present in this assemblage.

Cod (*Gadus morhua*) has been one of the most important food fishes, its value as prime food is enormous, its firm flesh allows for preservation as 'stock fish' i.e. dried or salted. In the northern North Sea, cod spawns in February and early March. Cod are generally found from the shore line to deeper waters, its growth rates are variable, in the North Sea cod measures up to 18-cm in their first year, in their second 36-cm and may grow up to 150-cm.

Cod of 25-120 cm sizes were represented at Castle Hill, vertebrae were the most abundant element present of this species.

Vertebra is one of the most robust elements of the fish skeleton therefore its overrepresentation here is not surprising. It is important however to note that a few head skeletal elements are also quite robust, for example, the cleithrum which would usually survive well in archaeological deposits. The underrepresentation of this head element may have been caused by the techniques of fish processing carried out at the site. Gadidae are species most suitable for drying, wind-drying, where fish are decapitated but the cleithra is left in situ to produce rigidity when the filleted fish is then hung or left to dry in racks. This process has been traced to the early Norse period in Northern Scotland (Cerón-Carrasco 1994, 1998).

Ling (*Molva molva*) is a deep water fish traditionally caught by long-line and a popular species amongst fishermen who considered it 'the cleanest fish of the sea' (Martin 2004). Ling has also been a favorite species used for salting and drying in a similarly to cod. The remains of ling in the Castle Hill fish bone assemblage were from specimens of 60cm to over 120cm in length.

A vertebrae from a large specimen of ling was found with a globular deformity, this is known as hyperostosis, a bone tumour which develop in adult fish, such phenomenon have been reported in fish archaeological remains from the Middle Ages in northern Europe (von den Driesch 1994).

Haddock (*Melanogrammus aeglefinus*) is also one of the most important cod-family fishes, it is found at depths of 40 to 133 m, but has a range as deep as 300 m. Juveniles prefer shallower waters and larger adults deeper water. In the North Sea, haddock spawn from March to May and may reach up to 120 cm in length. This is a very popular food fish, sold fresh, smoked or dried; it has a fine white flesh and can be cooked in the same ways as cod. In Scotland, haddock has particularly been processed as smoked fish.

Two types of smoked haddock have traditionally been produced; the 'finnan haddock' and the 'Arbroath smokie'. In the finnan haddock process, the fish are split with the vertebrae column lying on the left side and beheaded. The split fish is then placed in brine and then smoked. The finnan haddock must be cooked before eating. For the 'Arbroath smokie', the haddock is tied in pairs and is ready to eat once it has been smoked. For this method, the fish is beheaded and gutted (Lockhart 1997).

It is not possible to diagnose whether haddock were smoked at the site, and it is not clear from historical records the actual date the process of smoking was developed but by the mid 19<sup>th</sup> century, the slightly smoked 'finnan' was successfully exported to countries in Europe and America (Coull 1996). This industry depended mainly on the inshore fisheries.

Haddock remains recovered at Castle Hill were mainly for small and medium fish i.e. 30-60cm in length.

Saithe (*Pollachius virens*) and Pollack (*Pollachius pollachius*) are common fish occurring in northern inshore waters. These spawn from January to April and by midsummer the young fish are found close inshore among weed-covered rocks and open bays. This immature phase lasts for at least two years. Mature fish are found slightly offshore, mainly in mid-water and can reach a total length of 100-cm.

Skeletal elements of saithe and pollack were from immature specimens of less than 30cm in length.

Whiting (*Merlangius merlangus*) is a common inshore fish, it spawns from January to July and generally grow up to 70cm. Only a few vertebrae were recovered from this species.

Plaice (*Pleuronectes platessa*) is a widespread flatfish in northern European waters. It is found in a variety of substrates, from sand and gravel to rocky grounds. It attains a length of 60-cm and is mainly found during spring and summer.

Halibut (*Hippoglossus hippoglossus*) is the largest species of flatfish and may reach from 2-3 m, though species of 2 m are rare nowadays. These are often caught along with cod and are in season from June to March.

The thornback ray (*Raja clavata*) is distinguished by dense prickles over the entire back, and larger thorns in the mid-line from mid-disc to the dorsal fins. In sexually mature specimens these thorns are very large, with button-like bases (known as 'bucklers'). The thornback ray may attain a length of 85-cm and a width of 61-cm. This is the most common ray in shallow waters and is found in a variety of substrates. It is often caught by inshore fishing vessels and caught by line.

The thornback ray or skate as it is known in Scotland is a species of the Elasmobranchii family group of cartilaginous fish, the rays, skates and sharks. Buckles were the main element of this fish recovered in the Castle Hill assemblage, bones from cartilaginous fish disintegrate and only vertebrae cores are sometimes found but these are unidentifiable to species.

Mackerel (*Scomber scombrus*) belongs to the Scombridae marine fishes group; this is a common North Atlantic fish living near the surface of the sea in huge schools above the continental shelf. It is found seasonally close inshore but is highly migratory, making migrations as well as moving north in the summer. This is an important food-fish. It is caught in various ways including nets and by hook. Mackerel does not keep well after capture and therefore has to be eaten immediately, fresh, or be processed by smoking because of its high oil content (Ellis 1995).

A few vertebrae from this species were recovered, the bone from oily fish such as mackerel disintegrate rapidly in buried conditions, therefore their small numbers as compared to white fishes such as the gadids may be taphonomical.

Gurnard (*Eutrigla gurnardus*) known as 'crooner' in the East Coast, may attain a size of 20-30 cm and are available from July till February and is caught by line; it has a firm white flesh (Ellis 1995). A few vertebrae from this species were recovered.

The species described above have been commonly found in fish bone assemblages dated to the Medieval and Post-medieval periods in the East Coast of Scotland and Scottish Borders (Cerón-Carrasco 1995, 2007, 2008a and 2008b, 2009).

## **General discussion**

Throughout the coastal areas of Scotland, fishing has been a natural industry from the medieval period. During this period the fishing industry flourished through export of cured cod and herring to the Continent and featured prominently in commerce. As the industry developed, fisher-towns and villages also developed to supply growing towns throughout Scotland and fishing became more specialised (Anson 1950, Coull 1996).

In the East Coast harbors and ports were well-placed in relation to the rich fishing grounds of the North Sea. 'White' fishes such as saithe and pollack, which breed in large shoals near the beach or among kelp and seaweed, have provided a tasty source of nutrition (Gibson 1994). Another source of fish was the North Sea fisheries, the centre of which was the Great Doggerbank between the coasts of Britain, Norway, Denmark and Holland. It produced among others, cod, ling, plaice, haddock and whiting; all these are present in the Banff assemblage.

Fishing villages around the East Coast of Scotland are well-known; where large scale fishing where from the 1700's line fishing for haddock and cod during winter months, and a summer net fishing for herring took part. The range of flatfish in Scottish coastal waters is also considerable; they are found all around the Scottish coast (Lockhart 1997) and are easily caught in sandy beaches by line.

The fishermen of the East Coast would also have engaged, a great part of the year and particularly during spring, in the pursuit of ling, adult cod and haddock which were taken offshore from boats using hooked lines (Gray 1978). These fisheries were an important source of local food supply, but their scale of production was relatively modest until the 18<sup>th</sup> century when the white fisheries and herring fisheries were at their height (Coull 1996). Although, some of the main fishing ports in the East Coast were already established by the 13<sup>th</sup> century (Anson 1950).

Barrett *et al* (2004) suggest that increase in catch of cod and herring around AD 1000 in southern Britain corresponded with the early pan-European fish trade, this appears to have been also the case for northern Scotland. Small assemblages such as the Banff assemblage help support such on-going studies, as this represents remains of local fishing practices and local consume as well as for possible commerce. It reflects the sort of species that would have been available for local consumption and an inshore fishing strategy probably using lines from small boats to catch juvenile gadids, thornback ray, plaice, mackerel and gurnard; as well as an offshore strategy to catch large gadids, particularly ling, cod and haddock.

During the medieval period fish was as vital as bread, the Roman Catholic Church, to which most people belonged to, laid down the rule that on Fridays no one would eat meat, (and until late in the period, Saturdays and Wednesdays), throughout Lent dairy products and eggs were also forbidden; this meant that for half the days in the year everyone had to eat fish (Black 1993, Lockhart 1997).

For the ordinary people, this meant eating mainly cured herring, remains of which were not recovered at Castle Hill. For those of high status there was a wide choice of fresh sea fish such as plaice, cod, haddock, skate and mackerel. During winter months salted fish (cod and ling) would have mainly been consumed (Black 1993). The importance of 'stockfish' during the many 'fasting' days or 'fish' days imposed by the church must be stressed, In addition the techniques to make this edible adds to its novelty. Medieval cooks hammered, pummelled and soaked it, it was then put into 'Lenten' pies with fruits and spices. Parsnips were an important addition to this as their sweetness provides a good foil to the salt (Ellis 1995).

In terms of social implications, it is also interesting to note that fishing depended largely on collective family effort. There is considerable evidence that many fishing communities begun with a nucleus of a handful of families and although the actual work of fishing was done exclusively by men, and many generations of brave men went into sea, women and other family members played essential roles (Coull 1996).

## **Conclusion**

The fish remains recovered at urban archaeological sites are an important source of evidence to reconstruct the development of the early fishing industry in Scotland to support the known written record. These analyses serve to demonstrate the invaluable contribution that fish and fishing have provided to the diet and livelihood of vast amounts of coastal population throughout Scotland from the medieval period to early 20<sup>th</sup> century.

Fishing would have been an important resource from the earliest of times, initially to serve a local market and to develop on a large commercial scale. By the 18th century, white fisheries, as well as the herring fishing, was a well established and thriving industry along the whole of the East Coast of Scotland, with catches exported to London and the Continent.

The fish remains recovered from this excavation contribute valuable evidence to help reconstruct the development of the fishing industry, in terms of social, economic and religious component from medieval and post-medieval periods, thus supplementing the historical records of marine resource exploitation in the East Coast, a rich resource, a prominent industry which flourished until its decline in the 20<sup>th</sup> century.

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