

APPENDIX X  
Bird and Fish Bones  
S. Hamilton-Dyer

**X.1 Introduction and Methodology**

Bird and fish bones were hand-collected from excavation E4028 at Bective Abbey, Co. Meath, between 2009 and 2012 by Geraldine Stout and Matthew Stout. Bones were also recovered from sieved samples. The bird and fish remains were separated out during the mammal bone recording and made available for this analysis.

Taxonomic identifications were made using the author's modern comparative collections. All fragments were identified to taxon and element where reasonably possible. Measurements mainly follow von den Driesch (1976) for birds and Morales and Rosenlund (1979) for fish and are in millimetres unless otherwise stated. The archive includes metrical, condition and other details of individual specimens not presented in the text. The material has been analysed in four broad period groups and their sub-phases, but all of the bone was recorded by sample number and context and remains separate in the archive.

**X.2 Birds**

Almost 800 bird bones were available for analysis and are of at least 17 different types, although not all could be determined to species. Domestic fowl remains are the most frequent with geese, corvids, small passerines and pigeons also common. Other taxa occur as a few bones and include ducks, waders and raptors among others (table X.1).



**Fig. X.1** Corn bunting mandible from side (bottom) and from above (top).

**High medieval**

Bird bones totalling 234 specimens were recovered from 27 contexts. Numerically the remains of small passerines are the most frequent at 119 specimens, although many of these bones come from a small number of individuals. There are the remains of at least three individual birds in the 56 bones from context 6: a distinctive mandible (pl. X.1) and a maxilla match corn bunting *Emberiza calandra*; nine other bones are probably also of this individual. There are 44 bones from a smaller bird of about sparrow size and another slightly smaller again. In Trench 2 Feature 125 several bones (62) were found from two birds of about blackbird/thrush size. There is also one of blackbird size in Trench 1 Feature 5.

The most widespread taxon is domestic fowl, present in almost all of the contexts. These bones are a mixture of elements and sizes with few clearly associated bones. After fowl the bones of geese are the next most commonly found. The sizes of the bones indicate that these are probably domestic but some may be of the ancestral greylag *Anser anser*. Ducks are rare with one bone of mallard *Anas platyrhynchos* or its domestic form and one of teal *Anas crecca*. Goose bones are also present (pl. X.2).



**Fig. X.2** Goose coracoid from the high medieval phase (F009) in Cutting B



**Fig. X.3** Jackdaw bones from one individual.

Table X.1 – Birds from Bective Abbey (2010–12)

Number of individual specimens (NISP)	High medieval	Garden medieval	Later medieval	Post-dissolution	Precinct unstrat.	Garden unstrat.
swan, <i>Cygnus</i> sp.				3		
goose, domestic/greylag, <i>Anser anser</i>	22	11	20	27	10	13
goose, other			1			
duck, mallard/domestic, <i>Anas platyrhynchos</i>	1	4	1	1	1	1
duck, other	1	1			1	
domestic fowl, <i>Gallus gallus</i>	52	47	47	42	16	34
large galliform, ?turkey				1		
partridge, <i>Perdix perdix</i>		1	1			
pigeon, cf. domestic/rock dove, <i>Columba livia</i>	5	2	13	13	4	1
corncrake, <i>Crex crex</i>						1
waders, Charadriidae		1	2	2		3
raptors, Accipitridae	1		3	3		
raven, <i>Corvus corax</i>	2		2	16		1
medium corvid, cf. rook/crow	5		7	16	6	3
small corvid, cf. jackdaw, <i>Corvus monedula</i>	14	4	8	5	2	3
small passerines	119		51	1		
bird, indeterminate	12	14	42	34	4	6
<b>total NISP</b>	<b>234</b>	<b>85</b>	<b>198</b>	<b>164</b>	<b>44</b>	<b>66</b>
<b>NISP excluding indeterminate</b>	<b>222</b>	<b>71</b>	<b>156</b>	<b>130</b>	<b>40</b>	<b>60</b>
<b>% of identified NISP</b>	<b>High medieval</b>	<b>Garden medieval</b>	<b>Later medieval</b>	<b>Post-dissolution</b>	<b>Precinct unstrat.</b>	<b>Garden unstrat.</b>
swan, <i>Cygnus</i> sp.				2.3		
goose, domestic/greylag, <i>Anser anser</i>	9.9	15.5	12.8	20.8	25.0	21.7
goose, other			0.6			
duck, mallard/domestic, <i>Anas platyrhynchos</i>	0.5	5.6	0.6	0.8	2.5	1.7
duck, other	0.5	1.4			2.5	
domestic fowl, <i>Gallus gallus</i>	23.4	66.2	30.1	32.3	40.0	56.7
large galliform, ?turkey				0.8		
partridge, <i>Perdix perdix</i>		1.4	0.6			
pigeon, cf. domestic/rock dove, <i>Columba livia</i>	2.3	2.8	8.3	10.0	10.0	1.7
corncrake, <i>Crex crex</i>						1.7
waders, Charadriidae		1.4	1.3	1.5		5
raptors, Accipitridae	0.5		1.9	2.3		
raven, <i>Corvus corax</i>	0.9		1.3	12.3		1.7
medium corvid, cf. rook/crow	2.3		4.5	12.3	15.0	5.0
small corvid, cf. jackdaw, <i>Corvus monedula</i>	6.3	5.6	5.1	3.8	5.0	5.0
small passerines	53.6		32.7	0.8		
bird, indeterminate % of total NISP	5.1	16.5	21.2	20.7	9.1	9.1

Corvid bones are quite frequent with at least three types present in the 21 specimens; there are two bones of raven *Corvus corax*, five of rook/crow *C. corone*/*C. frugilegus* and 14 of jackdaw *Corvus monedula*. Eight of the latter are from context B21 and are from one individual (pl. X.3) but the others occur as one or two bones from across the site.

The five bones of pigeon found from this phase include four in L6 that are from two different birds, one immature. These are all probably of domestic/rock dove *Columba livia* rather than the larger woodpigeon. A small falcon tarsometatarsus recovered from H16 matches kestrel *Falco tinnunculus*.

#### Garden medieval phases

The bones from the stratified garden phases are dominated by domestic fowl, 47 specimens. There are eleven of goose including a furcula from context 208 with small carnivore tooth marks, presumably from a cat (pl. X.4). The five duck bones include one from context 205 that is much smaller than a mallard or domestic duck but larger than teal. The morphology of the bone does not quite match the commonly found wigeon, and is possibly from a shoveller. Jackdaw is again present and there are two bones of pigeon, a partridge femur from context 212 and a wader humerus, probably snipe, in R03.



**Fig. X.4** Goose furcula with cat tooth marks.

**Late medieval phases**

There are 198 bird bones from these contexts, with domestic fowl and small passerines again the most frequent and other taxa similar to those in the high medieval phase. The distribution is not even across the phases; most of the fowl are from phase 7 and the small passerines are from phases 5 and 6. The domestic fowl bones mainly occur as small numbers of bones from several contexts, whereas the small passerines are almost all from two deposits; SS13 and SS6. The 17 bones from SS13 include several presumed to be from one bird, probably a corn bunting; the other two are from a small bird of robin size. There are 32 small passerine bones from SS6, several of which again match corn bunting. These bones include two mandibles and in total three different individuals are represented. There is also one bone of sparrow size in this deposit and one bone of a smaller bird. Another sparrow-sized bone was found in L3. A blackbird-sized bone was found in A9. The phase 6 context SS6 also contains a wide variety of other bird bones including several of at

least one immature pigeon and two bones of a wader, one of which is a good match for the golden plover *Pluvialis apricaria*. One of the goose bones from this period group, a carpometacarpus from phase 7 Trench 2 context 103, is appreciably smaller than the others and is probably of the white-fronted goose *Anser albifrons*. Just one duck bone is present, in Trench 2 context 113. This bone, a tarsometatarsus, is rather thick and sturdy and is probably from a domestic bird.

A small carpometacarpus matching partridge *Perdix perdix* was identified in phase 7 context 2:103. There are also three bones of raptors from this context. Two of these are slightly pathological; the tarsometatarsus best matches a large kite *Milvus sp.* and is almost complete but with a pathological necrosis of part of the distal articulation (pl. X.5). The foot phalanx could be from the same bird. The scapula is incomplete and has reactive bone growth around the articulation. This bone was not fully identified to species but is perhaps from the same individual.

**Post Dissolution**

Domestic fowl, corvids, geese and pigeons are the most common remains in this period group. Bones of other taxa are few but include swan, duck, raptors, waders and turkey. The corvid remains are mainly of raven and rook/crow, but all 16 of the raven bones are from a single bird in J2. The bones of the lower leg are slightly pathological with extra bone growth around the joints. There are three bones of swan *Cygnus sp.*, a coracoid, femur and sternum, all from context 301 and probably from a single bird. These are the only remains of swan from the site. Waders are represented by a leg bone from phase 3.8 H14, probably of an immature woodcock *Scolopax rusticola*, while one from P10 in the same phase is a good match for snipe *Gallinago gallinago*. Also from this context is a tarsometatarsus from a bunting-sized



**Fig. X.5** Pathological foot bones of a large kite (front and rear view).



**Fig. X.6** Immature buzzard tibia.

Element	High medieval		Garden medieval		Later medieval		Post-dissolution		Precinct unstrat.		Garden unstrat.	
	count	%	count	%	count	%	count	%	count	%	count	%
skull	1	1.9										
sternum					2	4.3	1	2.4			2	6.1
furcula	1	1.9			2	4.3	2	4.8	1	6.3	3	9.1
coracoid	4	7.7	2	4.3	4	8.7	3	7.1			3	9.1
scapula	2	3.8	5	10.6	2	4.3	4	9.5				
humerus	4	7.7	4	8.5	7	15.2	3	7.1	1	6.3	2	6.1
radius	3	5.8	2	4.3	6	13	3	7.1	1	6.3	2	6.1
ulna	5	9.6	6	12.8	3	6.5	3	7.1	3	18.8	3	9.1
carpometacarpus	1	1.9	1	2.1	4	8.7					1	3.0
synsacrum	1	1.9					2	4.8	1	6.3		
pelvis	5	9.6			1	2.2	2	4.8	3	18.8		
femur	10	19.2	7	14.9	4	8.7	7	16.7	2	12.5	7	21.2
tibiotarsus	9	17.3	9	19.1	7	15.2	4	9.5	3	18.8	5	15.2
tarsometatarsus	6	11.5	11	23.4	4	8.7	8	19.0	1	6.3	5	15.2
<b>total NISP</b>	<b>52</b>		<b>47</b>		<b>46</b>		<b>42</b>		<b>16</b>		<b>33</b>	

bird, the only small passerine bone from this period. Three bones of raptors were identified, each one representing a different species. An immature tibia from context 301 is probably of buzzard *Buteo buteo* (pl. X.6). An ulna from context H2 is a good match for a large kite, probably female. A humerus from J2 matches the hen harrier *Circus cyaneus*. A small fragment of tibiotarsus from a large galliform was found in the post-dissolution context SN1. Of the three most likely birds, capercaillie, peafowl and turkey, the bone best matches the latter.

#### Garden unstratified, other unstratified contexts

A number of contexts could not be assigned to the phases but the bones are quite similar to others in the assemblage. Domestic fowl and goose bones are the most frequent. Other taxa include corvids, pigeon, mallard / domestic duck, teal and plover-size waders. The only bone of corncrake *Crex crex* from the assemblage, a humerus, was found in garden context 207.

#### Bird Discussion

The bones are dominated by the remains of domestic fowl and geese but there are also significant numbers of small passerines, corvids and pigeons. A wide variety of other birds are also represented. Just over 35% (239 specimens) of the identified bones from the assemblage are of domestic fowl and several of the indeterminate bones are also likely to be of fowl (others are probably mainly goose). The sample sizes are rather small for detailed analysis of the anatomical distribution but most elements are present, with an expected bias in favour of the larger and sturdier bones (table X.2). The leg bones are

slightly more common than the wing and other elements. Several of the bones, especially from Period 1 contexts, contain medullary bone (pl. X.7) and are therefore of hens that died or were killed during the laying season (Driver 1982). There are also several tarsometatarsi without spurs, also probably from females. Some of the bones have the porous, unfinished, appearance of immature birds and these could be of either sex. Further bones in the other phases are also of females or are immature, just one bone, a spurred tarsometatarsus from an unstratified garden context, can be definitely identified as male. A bias in favour of female birds was seen at Trim Castle (Hamilton-Dyer 2011) but not as noticeable as in this, admittedly much smaller, assemblage.



Fig. X.7 Medullary bone deposit inside hen leg bone.

Table X.3 – Butchery of birds at Bective Abbey (2010–12)

Medieval								
Record/Cutting/Feature			Taxon	Element	side	part	%	butchery
83	J	4	domestic fowl	ulna	L	whole	99	knife cut near distal
637	1	13	duck	tibiotarsus	L	whole	90	mallard / domestic, chopped off across distal joint
257	H	16	goose	humerus	L	distal	15	knife mark near distal joint, with tooth marks eg cat
482	SS	13	goose	sternum	R	cranial	25	sub axially chopped
713	SS	16	goose	sternum		lateral	20	cut across and chopped off laterally (subaxial)
341	2	103	pigeon	sternum		cranial	30	sub axially chopped
Late medieval								
Record/Cutting/Feature			Taxon	Element	side	part	%	butchery
134	4	301	domestic fowl	sternum		cranial	15	sub axially chopped
98	H	14	domestic fowl	scapula	R	whole	80	knife chatter marks near articulation
794	3	208	domestic fowl	tibiotarsus	L	distal	15	knife cuts across distal joint
132	4	301	goose	scapula	L	proximal	50	chopped through
798	4	301	goose	skull	R	lateral	30	sub axially chopped
401	P	10	goose	furcula	R		50	sub axially chopped
246	SS	4	goose	coracoid	R	distal	75	cut off at proximal, with tooth marks eg cat
59	3	208	goose	furcula			30	sub axially chopped, with tooth marks eg cat
667	3	203	goose	tarsometatarsus	R	whole	90	chopped off across proximal joint
354	3	207	goose	radius	L	proximal	50	knife cuts below proximal joint
114	SN	15	goose	scapula	R	cranial	50	knife cut on edge
298	R	3	indet. bird (goose)	cervical vertebra			75	chopped across
222	3	207	indet. bird (goose)	foot phalanx		proximal	50	chopped through

Although some of these bones might be from birds that died and were not consumed, the finding of several bones with medullary deposits implies that hens were killed even though capable of laying.

The geese represented in the assemblage are mainly of one size and are probably of domestic birds or the ancestral greylag *Anser anser*. One bone is clearly from a different, smaller, species, probably the white-fronted goose *Anser albifrons*, which overwinters in Ireland. Very few of the bird bones show butchery marks, in part because the smaller birds require little in the way of jointing. Most of the marks are on the goose bones and include evidence of dividing the birds in half. Evidence for axially split geese is also commonly found in Dublin assemblages (Hutton Macdonald *et al.* 1993, Hamilton-Dyer 1996). A pigeon sternum also shows this division and a similar one was found at Trim Castle (Hamilton-Dyer 2011). Other marks indicate separation of joints, for example to remove the wing from the body or the foot from the leg. The butchery traces found are listed in table X.3.

Ducks are rare; only 12 in total, a few bones of mallard/domestic size *Anas platyrhynchos*, one

smaller perhaps shoveller from garden trench 3, and two of teal one of which is from a high medieval context, the other unstratified. There are eight bones from waders; these are a difficult group to determine as there are several species with overlapping sizes but at least three different species are present. Several of the bones are comparable with plovers of golden or grey size, two are a good match for snipe and one is probably a woodcock. All of these make good eating and are usually the most common waders found in assemblages.

Pigeon bones are relatively common at 38 specimens. These are in several contexts with most from the Late medieval and the post-Dissolution phases. The bones are not as large as those of woodpigeon and are probably of the domestic form of the rock dove *Columba livia*. Several immature bones are also present and it seems likely that they derive from birds kept on site, in a dovecote for example. A dovecote was mentioned in the *extents* of 1540.

There are seven bones of raptors in the assemblage, of three or perhaps four species. The smallest matches kestrel, one is a good match for hen harrier. Larger bones are from kite or buzzard,

Table X.4 – Birds bones from medieval sites in Ireland

	Bective Abbey											
	High medieval	Garden medieval	Later medieval	Post-dissolution	Trim castle, Co. Meath	Clonmacnoise, Co. Offaly	Illtaunloughan, Co. Kerry	Bridge St., Dublin	Back Lane, Dublin	Cork	Galway medieval	
seabirds						11	551			1	31	
swan			3	3		8		2		1		
geese	22	11	21	27	387	32	1	204	73	228	69	
ducks	2	5	1	1	46	16		13	6	31	36	
domestic fowl	52	47	47	42	743	55	2	121	115	597	601	
other galliforms		1	1	1	16			11				
pigeon, cf. domestic /rock dove	5	2	13	13	29				1			
crane					4	17			2		2	
corncrake							2					
waders		1	2	2	63	3	3		7	10	20	
raptors	1		3	3	1	20		1	3			
raven	2		2	16		47		1	2		13	
other corvids	19	4	15	21	4	11	1		1	1	3	
small passerines	119		51	1		57	3				1	
NISP excl. indeterminate	222	71	156	130	1353	225	558	353	210	870	775	
domestic fowl & goose total	74	58	68	69	1130	87	3	325	188	825	670	
all other taxa	148	13	88	61	223	138	555	28	22	45	105	
<b>Percentages</b>												
seabirds						4.9	98.7			0.1	4.0	
swan				2.3	0.2	3.6		0.6		0.1		
goose, domestic /greylag	9.9	15.5	13.5	20.8	28.6	14.2	0.2	57.8	34.8	26.2	8.9	
duck, mallard /domestic	0.9	7.0	0.6	0.8	3.4	7.1		3.7	2.9	3.6	4.6	
domestic fowl	23.4	66.2	30.1	32.3	54.9	24.4	0.4	34.3	54.8	68.6	77.5	
large galliforms		1.4	0.6	0.8	1.2			3.1				
pigeon, cf. domestic /rock dove	2.3	2.8	8.3	10.0	2.1				0.5			
crane					0.3	7.6			1.0		0.3	
corncrake						0.9						
waders		1.4	1.3	1.5	4.7	1.3	0.5		3.3	1.1	2.6	
raptors	0.5		1.9	2.3	0.1	8.9		0.3	1.4			
raven	0.9		1.3	12.3		20.9		0.3	1.0		1.7	
other corvids	8.6	5.6	9.6	16.2	0.3	4.9	0.2		0.5	0.1	0.4	
small passerines	53.6		32.7	0.8	4.2	1.3				0.1		
domestic fowl & goose total	33.3	81.7	43.6	53.1	83.5	38.7	0.5	92.1	89.5	94.8	86.5	
all other taxa	66.7	18.3	56.4	46.9	16.5	61.3	99.5	7.9	10.5	5.2	13.5	

perhaps both. Whether any of these was associated with falconry or are remains of culled predators is difficult to judge, and whether or not they were then eaten. A probable harrier wing bone from Bridge Street in Dublin had been cut indicating that this was not simply the disposal of a dead bird (Hamilton-Dyer 1996); if not eaten then perhaps the wing feathers were utilised.

As the turkey is a native of North America the find of this bird from a post-dissolution context must post-date contact. Turkey bones have been found in several post-medieval assemblages including from Dublin and Galway City (Hamilton-Dyer 2007).

Corvid remains are common at this site with 21 of raven, 37 of rook/crow and 36 of jackdaw. Some of these are associated bones from a limited number

of individuals but corvid bones are well distributed across the site and phases. It seems likely that these were perceived as pests and culled. Jackdaws favour stone buildings such as churches and were probably breeding at the site. Ravens are less common near habitation but do feed on lamb stillbirths and other carrion. All of the corvids, but especially ravens and jackdaws, can be kept and taught to talk so it is possible that some remains may be from captive birds.

Small passerines (song birds) of several different sizes are present, often in small groups of bones representing a small number of individuals. The 171 bones range from small robin-sized birds to those the size of blackbird. Most bones are from birds between these sizes and several can be positively identified as corn bunting. This bird is similar in appearance to a very large sparrow and, as the name suggests, is commonly found in cereal fields. It is assumed that these bones represent consumed birds although no butchery was observed, partly because they seem an unlikely species to be found around the buildings. Unlike linnets or goldfinches they are not known for their song or appearance as a cage bird. At Trim Castle several passerines of thrush size were found in deposits that contained food waste and in one case a bone did carry a butchery mark (Hamilton-Dyer 2011). Finally, one small bone of the migratory corncrake *Crex crex* is present in the unstratified garden phase.

### Comparison with other sites

The bird bone assemblages from the island monasteries at Illaunloughan (O'Sullivan 2005) and Skellig Michael (Hamilton-Dyer 2011a) are dominated by wild seabirds with almost no remains of domestic fowl. At Iona domestic poultry are present in the medieval deposits but only one bone was identified in the early medieval levels (McCormick 1993, Coy and Hamilton-Dyer 1993). Domestic poultry dominate urban and castle assemblages such as those from Trim, Dublin, Galway and Cork (Hamilton Dyer 2007, McCarthy 2003).

The bird assemblage from Bective Abbey does not quite match any other but is closest to those from Clonmacnoise (Hamilton-Dyer 2011b) and Trim Castle (Hamilton-Dyer 2011) (table X.4). At Clonmacnoise the high proportion of non-poultry remains are mainly of raven and raptors whereas at Bective they are mostly of the other corvids and small passerines. Trim Castle has a much higher proportion of poultry, except in comparison with the garden phase. The variety of non-poultry remains at Trim is quite similar with high numbers of pigeon (probably domestic), waders and small passerines.

It can be difficult to compare assemblages with small passerine remains as these are usually recovered only by sieving and not all sites have this type of recovery, although Clonmacnoise and Trim did have sieved recovery most of the Dublin sites did not. The bones of the corvids and raptors are much larger, however, and these were also less common in the urban assemblages, with the exception of Fishamble Street in Dublin where they were frequent (O'Sullivan 1990). This is a Viking assemblage, however, and the presence of ravens and other 'special' birds is not unexpected.

### X. 3 Fish

Fish remains were less common than those of birds with a total of 426 specimens recorded. The remains are of a wide variety of fish with at least 14 species present (table X.5). Cod *Gadus morhua* at 51 bones and 22.7% of the identified specimens is the most common species and widely distributed across the site and phases. Other large Gadidae (haddock *Melanogrammus aeglefinus* – 7 bones (pl. X.8), ling *Molva molva* – 9 bones) and the closely related hake *Merluccius merluccius* (13 bones) are also present but the smaller whiting *Merlangius merlangus* is rare, just two bones. In addition there are 22 fragmentary and indeterminate gadid elements and it is likely that several of the indeterminate fish fragments are also of the large Gadidae. Head bones and vertebrae are present, indicating that at least some of the gadids were arriving as whole fish rather than processed (headless) ones. Butchery marks on the fish bones are very few, just five specimens, three of these on cod. These include a cod dentary from B27 with the anterior part chopped off, a supracleithrum from H10 with the tip cut off and a maxilla from P5 chopped through the anterior part. Some of the bones are sufficiently intact to measure and all were also compared visually with recent specimens; most bones are from fish of a metre or longer total length.

Herring *Clupea harengus* and, especially, eel *Anguilla anguilla* also appear to be frequent at 22 and 37 specimens respectively. Most of these, however,



Fig. X.8 Haddock cleithrum.

Table X.5 – Fish from Bective Abbey (2010–12)

Number of individual specimens (NISP)	High medieval	Garden medieval	Later medieval	Post-dissolution	Precinct unstrat.	Garden unstrat.
shark / ray, shark / ray			1			
spurdog, <i>Squalus acanthias</i>		1	1			
thornback ray, <i>Raja clavata</i>	1	1				
eel, <i>Anguilla anguilla</i>	3	26	4		4	
conger, <i>Conger conger</i>		2		1		1
herring, <i>Clupea harengus</i>	3	12	2	5		
salmon, <i>Salmo salar</i>			1			
cod, <i>Gadus morhua</i>	10	12	10	7	1	11
haddock, <i>Melanogrammus aeglefinus</i>		2	1	3		1
ling, <i>Molva molva</i>	1	1	2	2		3
whiting, <i>Merlangius merlangus</i>	1			1		
gadid, cod family, Gadidae	3	4	4	3	1	7
hake, <i>Merluccius merluccius</i>	4	6	1	1		1
bass, <i>Dicentrarchus labrax</i>			1			
gurnards, Triglidae		6	9			2
flatfish, Pleuronectiformes	2	3	7		2	20
fish, indeterminate	23	73	52	27	9	17
<b>total NISP</b>	<b>51</b>	<b>149</b>	<b>96</b>	<b>50</b>	<b>17</b>	<b>63</b>
<b>NISP excl. indeterminate</b>	<b>28</b>	<b>76</b>	<b>44</b>	<b>23</b>	<b>8</b>	<b>46</b>
	<b>High medieval</b>	<b>Garden medieval</b>	<b>Later medieval</b>	<b>Post-dissolution</b>	<b>Precinct unstrat.</b>	<b>Garden unstrat.</b>
<b>% of identified NIS</b>						
shark / ray, shark / ray			2.3			
spurdog, <i>Squalus acanthias</i>		1.3	2.3			
thornback ray, <i>Raja clavata</i>	3.6	1.3				
eel, <i>Anguilla anguilla</i>	10.7	34.2	9.1		50	
conger, <i>Conger conger</i>		2.6		4.3		2.2
herring, <i>Clupea harengus</i>	10.7	15.8	5	21.7		
salmon, <i>Salmo salar</i>			2.3			
cod, <i>Gadus morhua</i>	35.7	15.8	22.7	30.4	12.5	23.9
haddock, <i>Melanogrammus aeglefinus</i>		2.6	2.3	13.0		2.2
ling, <i>Molva molva</i>	3.6	1.3	4.5	8.7		6.5
whiting, <i>Merlangius merlangus</i>	3.6			4.3		
gadid, cod family, Gadidae	10.7	5.3	9.1	13.0	12.5	15.2
hake, <i>Merluccius merluccius</i>	14.3	7.9	2.3	4.3		2.2
bass, <i>Dicentrarchus labrax</i>			2.3			
gurnards, Triglidae		7.9	20.5			4.3
flatfish, Pleuronectiformes	7.1	3.9	15.9		25	43.5
<b>fish, indeterminate % of total NISP</b>	<b>45.1</b>	<b>49.0</b>	<b>54.2</b>	<b>54.0</b>	<b>52.9</b>	<b>27.0</b>

come from a few samples from the garden area. There are a few bones from high medieval contexts and these include a herring vertebra from SN14 that is crushed; probably indicating human consumption (Jones 1986). Remains of gurnards, including the distinctive dorsal spines of grey gurnard *Eutrigla gurnardus*, were recovered from several *loci* as were flatfish (pl. X.9). Three of the flatfish vertebrae, from high medieval contexts in trench 2, are probably of turbot *Scophthalmus maximus* (pl. X.10); other bones are probably of plaice *Pleuronectes platessa*. One of the flatfish vertebrae, from trench 3 context 207, is one of the rare bones with butchery, being chopped across.



Fig. X.9 Gurnard premaxilla.



**Table X.6– Fish bones from Bective Abbey and Trim Castle**

	Total ident.	sharks & rays	conger	Eel	herring	Salmon	pike	cod	ling	haddock	whiting	Gadidae	hake	bass	gurnard	seabream	wrasse	flatfish
<b>Bective Abbey</b>																		
High medieval	28	1		3	3			10	1		1	3	4					2
		3.6		10.7	10.7			35.7	3.6		3.6	10.7	14.3					7.1
Garden medieval	76	2	2	26	12			12	1	2		4	6		6			3
		2.6	2.6	34.2	15.8			15.8	1.3	2.6		5.3	7.9		7.9			3.9
Later medieval	44	2		4	2	1		10	2	1		4	1	1	9			7
		4.5		9.1	4.5	2.3		22.7	4.5	2.3		9.1	2.3	2.3	20.5			15.9
Post-dissolution	8	23		1		5			7	2	3	1	3	1				
			4.3		21.7			30.4	8.7	13	4.3	13	4.3					
<b>Trim Castle</b>																		
Late 13th to early 14th century	270		8		1		2	82	38	18	23	42	24		3	5	4	20
			3		0.4		0.7	30.4	14.1	6.7	8.5	15.6	8.9		1.1	1.9	1.5	7.4
Mid 14th to early 15th century	326	1	10		7	3	1	107	56	8	8	72	8		4	1		40
		0.3	3.1		2.1	0.9	0.3	32.8	17.2	2.5	2.5	22.1	2.5		1.2	0.3		12.3

Other fish occur as one or two bones only; these include the spines of spurdog *Squalus acanthus* (pl. X.11), teeth of the thornback ray *Raja clavata*, and bones of conger *Conger conger*, salmon *Salmo salar* and bass *Dicentrachus labrax*.

**Comparison with other sites**

This diversity of fish species at Bective is similar to the assemblage from Trim Castle (Hamilton-Dyer 2011). Cod, other gadids and hake are the most frequent taxa but pollack is absent from both (table X.6). Flatfish are also common and include several from the larger species. Other taxa present in both include gurnards, herring, conger and salmon. There are differences between the two; whiting is much more frequent at Trim and there are some fish not found at Bective – pike, seabreams and wrasse, while

eel and ray were not found at Trim. Both assemblages are relatively small and it is possible that some of these taxa might be seen in larger samples.

West coast sites, especially monastic ones, are dominated by the locally available rocky coast fish such as pollack, gurnards, seabreams and wrasse. At Illaunloughan for example, the large (and sieved) fish assemblage was dominated by seabreams with wrasse, hake and pollack common (Hamilton-Dyer 2005). Cod bones are comparatively rare. In contrast the urban sites including Galway, Dublin and Cork, have relatively few of these fish and are dominated by the large gadids and hake (Hamilton-Dyer 2007, 2014). In comparison, the hand-collected fish bones from Iona are mainly of large cod and ling, the sieved material being mainly of whiting, gurnard and flatfish (Coy and Hamilton-Dyer 1993).



**Fig. X.10** Turbot.



**Fig. X.11** Spurdog spine.

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