Richard C. Hoffmann and Alasdair Ross

In summer 1365, probably early July, an act of violence occurred on the River Forth beside the royal burgh of Stirling, Scotland. Thirty-one named burgesses, eight of them piscatores (fishers), attacked and smashed the cruives (fixed weirs) and fishing facilities on the River Forth which belonged to the Augustinian abbey of Cambuskenneth, dedicated to the Virgin Mary. Early July also coincides with the feast of the Visitation of the Virgin Mary (2 July) and so perhaps the inhabitants of the burgh struck on a day when the abbey and its tenants would naturally have been preoccupied with other matters.\(^1\) The effect of a royal and parliamentary order of 27 July ordering the burgh to make good the damages within forty days was at least partly ignored; there are no further references to a fixed fish weir in any of the abbey records and a document of 1501 refers back to outstanding claims arising from the charter of King David II (1329-71) regarding the abbey cruives.\(^2\) The attack was not an isolated incident but the first record of a violent dispute between burgh and abbey over salmon fishing rights on the river that lasted until the Reformation. Different factors likely underpinned this controversy: the location and fishing rights of the abbey, the perceived value and status of salmon across medieval Europe, and how the piscine resource of the river was caught and managed.

The abbey records and their fisheries

The establishment of communities of regular canons under the rule of St Augustine was a popular elite activity between \(c.1100\) and \(c.1300\) in Scotland when some eighteen different communities were established.\(^3\) As might be expected given the range of resources available to the founders of these communities, those foundation charters that have survived the political vicissitudes of medieval Scotland indicate that different communities possessed vastly diverse holdings.

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\(^1\) The Records of the Parliaments of Scotland to 1707, ed. by K.M. Brown et al (St Andrews, 2007-2016), 1366/7/21. Date accessed: 6 March 2016.

Medieval attacks on ecclesiastic property are well-documented: Cohn, Popular Protest, pp. 201-50.

\(^2\) NRS, B66/25/259.

\(^3\) Cowan and Easson, Medieval Religious Houses, pp. 88-99.
Current research on medieval monastic houses and their estates in Scotland is in its infancy. Of note has been the continuing work on Cistercian foundations, but the other religious orders have largely been ignored. Accordingly, it is currently unclear how most of the monastic orders established in medieval Scotland managed (or mismanaged) the various properties and natural resources placed at their disposal, or how their management strategies may have impacted on the natural environment across time. Part of this problem lies in the nature of surviving Scottish monastic sources, many of which only partially survived the secularization of monasteries post-1500 and the Reformation.

In 1535, the Cambuskenneth records were adjudged to be in an advanced state of decay and so King James V (1512-42) ordered that Abbot Alexander Mylne (1519-48) make a transumpt of the original documents. This amounted to a beautifully decorated volume containing 178 leaves which recorded some 225 charters, papal bulls, and other documents relating to the properties of the abbey. All of the documents included in the new register were alphabetically recorded, faithful to the earlier register, but no detailed rentals or management accounts were selected for inclusion. The abbot may just have chosen those documents he thought were of greatest importance to the abbey for insertion in the transumpt.

The de novo royal foundation of Cambuskenneth Abbey was erected by King David I (1124-53) in 1147 for the order of Arrouaise to serve the chapel of St Mary in the nearby royal burgh of Stirling. Located on the banks of the River Forth downstream from the burgh at a point where it was still navigable by ocean-going vessels, the abbey was also permitted to exploit the piscine resources of the river. The foundation charter granted a number of resources to the canons including the lands of Cambuskenneth, fishings in the Forth between Cambuskenneth and Polmaise, one net in the Forth, the cain (a fixed payment in kind) of one ship, a saltpan with appropriate land, the teind (tithe) of the ferme of the king’s demesne of Stirling, an island in the Forth between Polmaise and Tullibody, and twenty cuthrom of cheese out of the king’s rents of Stirling.

In comparison to the larger Augustinian foundations of David I in Scotland this appears to have been a rather meagre settlement. Partly, this may be because the king was attempting to build a new community of canons within an already busy industrialized landscape dominated by the royal castle and burgh of Stirling. Some concessions made to the new community came out of existing royal lands and revenues, and these may have supported the fishings in the River Forth between Cambuskenneth and Polmaise too. This in fact was a substantial concession; Polmaise is less than four kilometers east of Cambuskenneth (on the opposite side of the river) as the crow flies but because the Forth meanders extensively in this

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4 Jamroziak, Survival and Success on Medieval Borders; Oram, Life on the Edge.
5 Fraser, Registrum De Cambuskenneth, pp. v-xiv.
6 Recent discussions of the cult of the Virgin Mary include Hammond, ‘Royal and aristocratic attitudes to saints and the Virgin Mary’, pp. 61-86; Fitch, ‘Mothers and their sons’, pp. 159-76.
7 Barrow, Charters David I, p. 4 and no.159.
8 Barrow, Charters David I, nos.147 & 174.
area the actual length of both river banks between the two points amounts to more than sixteen kilometers.⁹

By 1195, Cambuskeneth had also acquired additional fishings on the Forth at Tullibody and Kersie on the north bank of the river, strengthening the abbey’s control of the river system below the burgh. This meant that by 1200 the fishings belonging to the canons effectively spanned the entire Forth river system downstream of the burgh from the village of Cambuskeneth to the point where the river begins to rapidly widen into the Forth Estuary at Alloa – perhaps as much as thirty kilometers of river bank on the Forth below the burgh. The canons also possessed a fishery on the River Clyde at Renfrew though little is subsequently revealed about this resource and its catch.¹⁰ The only further acquisition of fishing rights by the abbey occurred in 1399 when they were granted Moortown with its fishings on the Bannockburn, about two kilometers south of the latter’s mouth on the Forth (see map xxx).¹¹

Later records might also tell us something about the abbey’s earlier rights to salmon from the Forth. A court case of 28 November 1682 between the Erskine earls of Mar and the Livingstone earls of Callander noted that while the former owned all of the ex-abbey salmon fishings on the Forth from the abbey coble of Cambuskeneth downstream to the mouth of the River Carron, the latter claimed cáin of six salmon yearly out of every fishing boat between those two points which had been the duty that those boats had previously paid to the abbots of Cambuskeneth.¹² Both families had formerly supplied secular commendators for the abbey; the Erskines between 1562 and 1617 (after which they were permanently granted Cambuskeneth by the crown), and the Livingsones for a short period c.1585.¹³ Accordingly, this document, in conjunction with the identities of the feuding parties, may have been harking back to an earlier (but now lost) grant from the crown to the abbey of the cáin of salmon catches from the River Forth.

But even if we know which fisheries belonged to the Augustinian canons it is quite another matter to understand what was being done with their catches. Presumably some of it must have been for local consumption but what proportion that was of the total annual catch is unknown. No abbey economic records have survived to tell us how much of the catch was consumed, what proportion was processed for sale, or even who it might have been sold to. In this respect, the canons did possess their own salt manufactory on the Forth. This likely was a sleeching operation,¹⁴ the product of which could have been used to preserve fish, but again the remaining abbey records are silent about this. A final conundrum to consider at this point is how the abbey prosecuted the piscine resources at their disposal. Apart from the mention of

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⁹ The River Forth is not a high energy system so there is a high probability that the medieval river system was very similar in form to that found today. For example, a comparison between maps produced c.1583 and the present day demonstrate virtually identical meanders: http://maps.nls.uk/counties/view/?id=295; http://maps.nls.uk/view/91527242. Accessed 1 March 2016.

¹⁰ Fraser, Registrum De Cambuskenneth, no.25.

¹¹ Fraser, Registrum De Cambuskenneth, no.188.

¹² NRS, GD124/6/115.

¹³ Watt and Shead, Heads of Religious Houses, p. 28.

¹⁴ Ross, ‘Recreating the Bannockburn Environment’, pp. 96-110.
a net in the grant from King David I, various cobles, and their use of a fixed trap, the pre-1350 sources are silent about the other medieval technologies that might have been employed.\textsuperscript{15}

The canons were not the only people who possessed fishing rights on the River Forth. The river fishings upstream of the abbey substantially belonged to the royal burgh of Stirling and these extended at least as far as Craigforth and the Drip ferry.\textsuperscript{16} The burgh cruives were located near Craigforth, which marks the tidal reach of the river, but their records are also rather silent on the details of their medieval fishings. Craigforth, most likely, was also the location of the abbey cruives destroyed in 1365 (see image bbb).\textsuperscript{17} So before 1365 it is evident that the abbey had acquired a controlling interest on salmon fishings downstream of the burgh and had expanded their operations upstream too. By then, perhaps the burgh felt that the economic viability of its fishing interests were being threatened by the abbey and so took direct action because the salmon was a valuable fish in so many different ways.

\textit{The value of salmon in medieval Europe}

Written records, anecdotal, administrative, and serial, establish the cultural importance of salmon across medieval western Christendom.\textsuperscript{18} Throughout the Middle Ages these fish were ubiquitous features of conspicuous consumption at festive elite banquets, even well away from the sea. Byzantine physician Anthimus recommended salmon to early sixth century Frankish king Theodoric so long as they were fresh and he ate little of the skin.\textsuperscript{19} During times of silence at eleventh-century Cluny, most prestigious of western monasteries, the monks used a sign for salmon which they interpreted as signifying “pride, since the very proud and rich are accustomed to have such fish”.\textsuperscript{20} Thirteenth-century preacher Jacques de Vitry expressed the same opinion when accusing luxurious traditional Benedictines of having stomachs full of salmon, pike, and other delicacies, while truly ascetic Cistercians were full of vegetables and beans. Yet the Cistercian house of Kirkstall in Leeds salmon were among the more common large species found in the medieval midden.\textsuperscript{21} English elites, clerical and lay alike, displayed their status by offering salmon to eat or as honourific gifts. Around 1400 these fish were featured on the tables of King Carlos III of Navarre, on occasions when the city of Kraków celebrated ambassadors and other notable guests, and a half century later at Duke Philip the Fair of Burgundy’s famously extravagant ‘Feast of the Pheasant’.\textsuperscript{22} Especially because salmonid remains preserve poorly in archaeological settings, it is worth observing the presence of salmon bones in excavations from Anglo-Saxon Wraysbury in Berkshire, the local Slavic prince’s dwelling in high medieval Hitzacker on the Elbe, twelfth-

\textsuperscript{15} For technical descriptions of fishing methods see Von Brandt, \textit{Fish Catching Methods of the World}.
\textsuperscript{16} The coble ferry at Drip also belonged to the abbey [NRS, GD220/1/a/4/3/4].
\textsuperscript{17} Renwick, \textit{Stirling Recs}.
\textsuperscript{18} A shorter version of the following section has been provided to a different audience see Hoffmann, ‘Salmo Salar in Late Medieval Scotland’, pp. 355-56.
\textsuperscript{19} Liechtenhan, Anthimus, \textit{De observatione ciborum ad Theodoricum}, p. 18.
\textsuperscript{20} Jarecki, \textit{Signa Loquendi}, p. 122.
\textsuperscript{21} Greven, Jacques de Vitry \textit{Die Exempla aus den Sermones feriales}, p. 26; M.L. Ryder, ‘Remains of Fish and Other Aquatic Animals’, pp. 386-88.
\textsuperscript{22} Heinrich and Heidermanns, ‘Lachs’, pp. 528-32.
century castles along the lower Rhine, and a late medieval house of canons at Saarbrucken.

Even with the late medieval increase in consumption of marine fishes, salmon maintained a significant cultural place across their entire northern and western European range.

Not surprisingly, then, as soon as and whenever written records become common in a region, salmon fisheries are an object of possession claims and disputes. Adomnán’s seventh-century life of St Columba makes salmon fishing by monks and others on Irish rivers the occasion for several of the saint’s miracles. Viking Age Iceland’s legal customs, written down by the 1260s, followed Norwegian practice to make salmon fishing a right of riparian landowners. Elsewhere kings and princes claimed priority. In 762 Frankish king Pippin donated to Prüm abbey fisheries at sites on the Moselle and the right to erect a trap across the river at Neumagen; still in the late ninth century and even the early thirteenth these sites provided salmon to the monastery. Early thirteenth-century dukes of Pomerania likewise presented to monasteries at Żukow and Oliwa salmon fisheries in several rivers. But lay lords also claimed their share. Far up the Loire in Roanne, two named salmon fisheries passed in 1031 from the clerical son of a local landowning family to the abbey of Savigny, half as a gift in the present, the other half at his death, along with an annual payment of one salmon ‘for investiture’. So, too, were contemporary cartularies of churches in lower Normandy replete with gifts of salmon fishing from riparian landowners, most of them prudently limited to certain days of the week and provisions not to interfere with the lord’s own take. Late medieval judicial records from the lower Seine continue this possessive and competitive pattern, as lay lords and religious corporations struggled to assert, expand, or defend, their rights to the migratory fish.

Such records of estate management and conflict resolution reveal not only the value medieval communities placed on salmon fisheries, but also their prevalent use of weirs, traps, and beach seines to capture these fish at fixed locations in the rivers. Prüm’s estate survey from 893 counted five weirs at two sites on the Moselle and three on the Rhine and its tributaries. Local peasants had to provide construction materials and to work fishing and carrying the salmon to the abbey some dozens of kilometers distant. When the survey was updated in 1222 Prüm had eleven fishing sites on the Moselle, Meuse, and Rhine tributaries. While the lowest yielded sturgeons, those further upstream targeted salmon, four with weirs, the others with nets. The abbey expressly forbade any other weirs or nets from working on their lordships. The fish trap on the Loire at Saint-Victor, property of the Count of Forez by

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23 Coy, ‘Fish Bones’, pp. 68-74; Von den Driesch, ‘Fischreste aus der slawisch-deutschen Fürstenburg auf dem Weinberg in Hitzacker (Elbe)’, pp. 395-423; Reichstein, Untersuchungen an Tierknochen von der Isenburg bei Hattingen/Ruhr; Huster-Plogmann, ‘Fische’, pp. 529-32.
24 Anderson and Anderson, Life of Columba, pp. 364-67, 413-15, and 534.
25 Pétursdóttir, ‘God’s Gift. Salmon Fishing in Iceland in the Middle Ages’, pp. 61-64.
26 Schwab, Das Prümer Urbar, pp. 176, 181-82, 194-95, and 232-33.
27 Łęga, Obraz gospodarczy Pomorza Gdańskiego w XII i XIII wieku, pp. 35-49.
28 Bernard, Cartulaire de l'Abbaye de Savigny, i, pp. 366-67.
29 Halard, ‘La pêche du saumon en Normandie’, 174-75.
30 Lardin and Jegou, ‘La pêche en basse Seine à la fin du Moyen Age’.
31 Schwab, Das Prümer Urbar, pp. 176, 181-82, 194-95, 232-33, and 250-55.
the eleventh century, gave him 494 salmon in 1376/77 and 1284 in 1382/83. Mid-twelfth century canon Gui of Bazoches, literary correspondent and outdoor enthusiast, reported drawing the seine net to catch salmon (with a learned Latin pun on Salamone, i.e. Solomon) from Ardennes tributaries of the Oise. Financial accounts from seven years between 1313 and 1321 for the English royal fishery in the Thames at Westshene, Richmond, document expenditures on netting, cork floats, a bottom lead line, boats and heavy rope to deploy and draw to shore what was plainly a beach seine. The salmon caught there went in part to royal tables and the rest to market, producing annual cash returns twice the annual outlay. In the northwest of England ‘fishgarths’ for salmon, as distinct from ‘eelgarths’, were widely in evidence from the thirteenth to the sixteenth century and, when in good repair operational on rivers Eden, Derwent, Esk, and lesser flows. Wooden superstructures anchored across the stream supported floodgates and wooden grillwork to keep the fish from ascending, and a wicker or net enclosure at the centre to hold them for removal. Shore-based seines were employed both in lakes and in salmon rivers. The salmon fishery on the Derwent below the castle at Cockermouth was valued at £5/6/8 in the 1270s and £13/6/8 in 1368. Material remains of fishing weirs of medieval date recovered from the Elbe, Trent, Thames, Shannon, Loire, Dordogne, and other European rivers confirm their importance, as well as certain construction details. An often-documented combination of material arrangements and cultural practices make of salmon fisheries quintessential socio-natural sites, real points of historic interaction between reified modern concepts of Nature and Culture.

Across much of Western Europe good anecdotal evidence and other grounds support inference of depleting natural salmon stocks in smaller rivers and upper tributaries by the thirteenth century. For example, Angelika Lampen has traced the collapse of salmon in archival records of the convent at Werden on the Ruhr from abundance in the eleventh century to absence in the fourteenth. By that time complaints of weirs and illegal fishing killing smolts and damaging runs could be heard on the Thames, Severn, Wye, and Meuse. In lower Normandy the generous local supplies offered as gifts in eleventh and twelfth century charters had by the early fifteenth century turned into individual references to consumption of single salmon from Ireland and Scotland. Contemporary sources attributed the decline to barriers and competitive greed, but habitat changes resulting from agricultural

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32 Fournial, Les villes et l'économie d'échange, p. 195.
33 Adolfsen as Liber epistularum Guidonis de Basochis, p. 98.
34 Thorold Rogers, A History of Agriculture and Prices in England, i, pp. 610-14.
35 Winchester, Medieval Cumbria, pp. 107-13.
36 Lampen, ‘Medieval fish weirs’, pp. 129-34, summarized especially the German and other archaeological evidence then available, while Jenkins, ‘The Trapping of Salmon in the Rivers of England and Wales’, and Went, ‘Ancient Irish Fishing Weirs for Salmon’ cover mainly ethnographic evidence from much of the British Isles. Now see also O’Sullivan, ‘Medieval Fishweirs on the Deel Estuary, Co. Limerick’, pp. 15-17, and O’Sullivan, Foragers, Farmers and Fishers in a Coastal Landscape; Miéjac, ‘La pêche en Loire dans la Généralité d’Orléans à l’Epoque moderne’; and Cohen, ‘Early Anglo-Saxon Fish Traps’, pp. 131-39.
37 Lampen, Fischerei und Fischhandel im Mittelalter, p. 208.
38 PRO, KB 27/384 30E3, m1.3d, and KB 227/509 11R2, m1d; Wright, Sources of London English: Medieval Thames Vocabulary, p. 91; Williams, The Welsh Cistercians, pp. 75-76; Balon, ‘La pêche et le commerce du poisson dans le comté de Namur au Moyen âge’, pp. 28-31.
39 Halard, Xavier, ‘La pêche du saumon en Normandie du Xle au XVe siècle’, pp. 174-76.
clearances were also likely implicated. It is within such contexts that disputes over the right to prosecute the salmon resource may have arisen in medieval Scotland.

**Scotland’s medieval salmon fisheries**

Human exploitation in northern Britain of these seasonally rich supplies of preservable protein went back to the retreat of Pleistocene ice from what became the North Sea, but it entered the written record only as eleventh-century kings of Scots asserted royal authority over the rivers of their realm. During the ensuing two centuries lords, clerical and lay scrambled to enlarge their estates with river *pisicature* (fishings), at named riparian sites throughout Scotland. As Neville has recently shown for broad land-based aspects of medieval Scotland’s economy, this competition among lords over resources and the crown’s ensuing effort to control and exploit this competition established both the value then placed on salmon and the basis for future resource conflicts like that between Cambuskenneth and Stirling.

Dozens of charters issued by Scotland’s twelfth-century monarchs granted, described, and confirmed rights to fish with *retis* (nets) and *crovas/crohas* (weirs or cruives) in the major river systems of eastern Scotland and to a lesser degree those of the west. A generation later the *Acta* of Alexander III (1249-86) mention fish much less often, but confirm grants by his predecessors and add fisheries in the River Ness and several more in the southwest. A similar picture of ownership claims emerges from the renewals and confirmations issued by Robert I (1306-29) and David II. It is not surprising to find prominent among twelfth-century recipients old monastic or cathedral houses including Dunfermline, St Andrews, Holyrood, Scone, Melrose, Paisley, Dryburgh, Coupar Angus, Arbroath, and Cambuskenneth.

Religious obligations created another access to the wealth of salmon runs, as all Christians were required to pay a tenth of all annual gains (teinds) to their parish church. What applied to barley, lambs, or cheeses also applied to the catch, as King William had to remind all the men of Moray in 1187/89. In practice and, as elsewhere in Christendom, high prelates and corporations often appropriated teinds from their subordinates, teind-holders leased or contracted out the actual collection, and/or claimants arranged with teind-payers to take a fixed annual quantity or sum of money in lieu of the variable real tenth. Ample occasions for dispute over salmon teinds emerge in ecclesiastical and secular records relating to sites across Scotland, including the River Forth. Some lasted for decades.

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40 Neville, *Land, Law and People*, pp. 41-64.
41 Barrow, *Charters David I*, nos 39, 88, 92, 126, 172, 185; *RRS I*, nos 107, 160, 174, 226, 271; *RRS II*, nos 30, 39, 62, 197, 317, 362, 492; *RRS IV: ptI*, nos 42, 91, 169; *RRS V*, nos 29, 133, 275, 293, 388; *RRS VI*, nos 337, 467.
42 Barrow, *Charters David I*, nos 120, 183; *RRS I*, no.118.
43 *RRS II*, no.281.
44 Barrow, *Charters David I*, no.225; *RRS I*, nos.137, 182; *RRS II*, no.165; NRS B66/25/636, folios 1-65; Renwick, *Stirling Recs.*, p. 267; Batten, *Beauly Charters*, pp. 205-13.
Like most deeds to property, royal and ecclesiastical charters present salmon, or more accurately, the fishings of salmon, as legal constructs and only most rarely and obscurely as economic activities exploiting natural organisms. This common feature always limits the usefulness of medieval charters and, as allocating ownership rights ceased to be a primary concern of royal governments, diminishes the value of these sources for environmental history. By and large the charters offer sparse operational particulars of the *piscaturae* they allocate. Besides generic ‘nets’ they identify what are technically beach seines and weirs, two quite distinctive means of capturing fish. The former, a long net with one end anchored to shore, while the other is taken into the water by a coble to surround a (presumed) concentration of fish and then the resultant bag of netting pulled to shore with the catch, are initially to be inferred from repeated charter references to the *tractum retis* (draw of a net). Confirmation of this technology comes only from the detailed local records of estate management which everywhere ground historical study of an operating agrarian economy and ecosystem. But from late medieval Scotland only one even fragmentary such set of records has survived. Systematic consideration of this capture technique, its locations, and operation must rest on the account books of Coupar Angus, a now utterly destroyed Cistercian monastery with almost exclusively salmon fisheries on the River Tay, its tributaries Isla, Erich, and Dean, and elsewhere on the North Esk, Clyde, and Deveron.

Most important was the abbey’s fishery located furthest downriver at Campsie, where natural features still illuminate how local knowledge and experience undergirded capture techniques and ensuing socio-economic relationships. Campsie is the most richly documented of the Coupar fisheries, but only from the mid-fifteenth century, when each of its probably two or perhaps even more, fishing sites or facilities was being let out on mostly five-year terms to groups of fishers. Mid/late fifteenth-century rental agreements seem to identify at least two separate salmon fishings at Campsie, one for which the tenants supplied all the equipment including the boat and another for which the abbey provided the boat. Use of cobles already implies some kind of net or seine fishery. This is confirmed in a stipulation from 1508 of a net 33 fathoms (about 57-66m) long and tapering from 4 fathoms at the centre to 3½ (from 7 or 8 to a bit more than 6m) at the outer ends. Elsewhere in Europe the gently sloping shore needed for such beach seines were commonly designated, even possessed, as fishing sites. Both Campsie and the Forth fishings at Craigforth still possess such sandy beaches (see image ccc).

Technically speaking, seine nets call for considerable labour on the part of the fishers but little fixed investment; weir fisheries are more capital-intensive modifications of the environment, some of which survive or have left traces into the present. While Scottish antiquaries and archaeologists have attended to foreshore and estuarine traps meant to strand

45 Von Brandt, *Fish Catching Methods of the World*, pp. 283-97, with particular treatment of traditional seining in European fresh waters on pp. 286-88 and beach seining on pp. 289-91; Barrow, *David I*, no.126; *RRS* v, no. 275.

46 Easson, *Coupar Angus Charters*; Rogers, *Cupar-Angus Rentals*. 

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fish in tidewater,\textsuperscript{47} those erected to trap salmon in fast-flowing rivers could be less durable and remain less well-known. Fixed structures of wood and stone extended into or across the river to guide upstream migrants into a channel where they were held or dipped out. The vernacular Scots term \textit{cruive} and related Latin \textit{crova} or \textit{croha}, from a Celtic root for ‘enclosure’, came to specify the wicker boxes, cages, or ‘coops’ whence the fish could not escape, while the barrier or fence itself is a ‘yair’.\textsuperscript{48} Pools formed below and above the actual structure also concentrated fish for netting. In the early 1190s, for example, King William I referred to his own \textit{crohas} on the River Lossie pertaining to the castle at Elgin.\textsuperscript{49} These \textit{cruives} which belonged to a more obscure and isolated religious house, Beauly priory on the river of the same name in Ross, received from the family of its baronial founder after 1230, remain visible, even viable, today (see image ddd), having passed after the 1560s into possession of Lord Fraser of Lovat. In 1506 the priory was engaged in sending salmon via Bruges to the French mother house of their Valliscaulian Order.\textsuperscript{50} Beauly priory’s shipments had quasi-ritual significance but were meant for the Lenten dining of their brethren in Burgundy. By the late Middle Ages salmon were a noteworthy article of consumption and commerce in Scotland and its exports.

Published extracts from the municipal archives of Stirling indicate without doubt the importance of retail trade in salmon at the start of the sixteenth century. Each spring (Lent and the start of the annual run in the Forth) burgh ordinances reiterated strict limits on middlemen who bought salmon outside the market for resale there. Sale outside of shops was restricted to the weekly market day and peddlers obliged to give surety of their compliance. Strict provisions governed the butchering and cleaning of salmon at the common shambles beside the town gate.\textsuperscript{51} Medievalists will recognize here the concerns for consumer protection and regulated competition that were typical of urban retail markets, especially in foodstuffs.

Commerce in salmon is evident in records of sale prices starting in the early fourteenth century. The first citations are price per fish, which varied greatly from year to year but always with the season: salmon were costly in winter and early spring when few were available and Lenten demand was high and less so in summer when many fish of different size and quality could be had. The king’s own kitchen paid three times more per salmon before Easter than after.\textsuperscript{52}

Just as the fourteenth-century adoption by Netherlandish fishers of salting herring in barrels brought about much wider European custom for this more portable and durable product, a similar innovation likely promoted Scottish salmon sales. Toward the late 1300s barreled salmon entered the market and by the 1420s-30s had become the norm for large and export transactions. Cleaned and salted salmon in ‘Hamburg barrels’ (calculated at twelve to

\textsuperscript{47} Bathgate, ‘Ancient Fish-Traps or Yairs in Scotland’, pp. 98-102; Hale, “Fish-traps in Scotland: Construction, Supply, Demand and Destruction’, pp. 119-26.  
\textsuperscript{48} Dietz, “Modern English Cruive ‘wicker salmon-trap’”, pp. 277-91.  
\textsuperscript{49} RRS II, no.362.  
\textsuperscript{50} Batten, \textit{Beauly Charters}, pp. 157-66.  
\textsuperscript{51} Renwick, \textit{Stirling Recs.}, pp. 3, 9, 25, 27, 30, 34-35, 58.  
\textsuperscript{52} Gemmill and Mayhew, \textit{Changing Values in Medieval Scotland}, pp. 303-04.
the ‘Last’, so fourteen gallons or fifty-four liters each) were by then a standard commodity, actively promoted in parliamentary legislation and central to the trade of well-studied Aberdeen, then also of Leith.53

Principal export markets developed all along the southern shores of the North Sea, first in the fourteenth century in the Low Countries, then spreading to England and, especially after 1450 to France. Parliamentary legislation of 1398-1426 set an export tax of one penny for one adult salmon or two grilse (thus implying a trade in whole, not cut up or processed, fish). This or a poorly documented successor duty yielded entries in fragmentary surviving customs books at several fifteenth and early sixteenth-century ports. Aberdeen alone was shipping 200-500 barrels annually in the late 1420s to early 1430s. Recorded national exports of salmon went over 2000 barrels in the 1470s and peaked over 3000 barrels in the 1530s-40s. Scottish salmon came into English ports as far south as Dover, but the largest quantities, hundreds of barrels a year from the 1460s to 1540s, entered via Hull and Lynn. Mid-century (1430-88) Scottish parliaments thought the English demand so solid that they made salmon a tool for a bullionist trade policy, requiring payment in coin or specie. 54 Across the North Sea already in the autumn quarter of 1472 fragmentary import tolls counted at just one station on the principal shipping channel to Antwerp identified thirteen shippers with salmon totaling 52 lasts, 4 tonne, or 628 barrels. By autumn 1499 that total had increased by half. During the 1490s just one of the Scottish merchants in the Low Countries, Andrew Halyburton, who acted in Middelburgh as agent for dozens of elite and ordinary landholders, handled forty to eighty barrels each year. Salmon exports were central elements in Scotland’s overseas credit operations.55

It should therefore come as no surprise to learn that around 1200 and steadily thereafter the political authorities in Scotland repeatedly imposed public regulation on the salmon fishings.56 The evolution of these measures that can be documented highlights the intersection of competition and conservation which underlay conflict over salmon in the Forth. Competition and conservation are leitmotifs in the story of salmon in late medieval Scotland and plausibly that of the conflict over salmon in the River Forth. The first known violent clash between abbey and burgh took place just as new export markets for Scottish salmon were becoming established.57

53 Gemmill and Mayhew, Changing Values in Medieval Scotland, pp. 303-17.
54 Gemmill and Mayhew, Changing Values in Medieval Scotland, pp. 303-17; Ditchburn, Scotland and Europe, pp. 142-49; The Records of the Parliaments of Scotland to 1707, ed. by K.M. Brown et al (St Andrews, 2007-2016), 1318/13. Date accessed: 1 March 2016; RPS, 1430/28. Date accessed: 1 March 2016; RPS, 1434/2. Date accessed: 1 March 2016; RPS, 1436/10/11. Date accessed: 1 March 2016; RPS, 1473/7/18. Date accessed: 1 March 2016; RPS, A1474/5/4. Date accessed: 1 March 2016; and RPS, 1484/2/40. Date accessed: 1 March 2016; Rorke, ‘Error! Main Document Only.’Scottish Overseas Trade, 1275/86-1597”, vol. II, pp. 564-71 and 662-69. Accessed on line as: http://www.bris.ac.uk/Depts/History/Maritime/Sources/2001phdrorke2.pdf. Date accessed 10 March 2016.
55 Unger. Error! Main Document Only. De tol van Iersekröord, 294-99 and 504-16; Innes, Ledger of Andrew Halyburton.
56 Lord Cooper of Culross, Regiam majestatem et Quoniam attachienta; Lord Cooper of Culross, Selected Papers 1922 – 1954; Fergus, Quoniam attachienta, 196-198; Taylor, ‘Leges Scocie’, 207–288, notably 219-220; The Records of the Parliaments of Scotland to 1707, ed. by K.M. Brown et al (St Andrews, 2007-2016), 1318/13. Date accessed: 1 March 2016; RPS, 1469/27. Date accessed: 1 March 2016. The regulatory regime is more fully discussed in Hoffmann, “Salmo salar in late medieval Scotland,” pp. 362-64.
salmon were adding to domestic demand in both the command (‘feudal’) and exchange economies.

**Forth salmon wars redux**

Following the violent events of 1365 sources are silent for 130 years on any lingering animosity between abbey and burgh over the salmon resource of the Forth upstream of the abbey. The first signs of on-going trouble appear in December 1494 when the Lords Auditors commanded eighteen men to stop their wrongful occupation of burgh fisheries on the Forth. The sources do not explain who these men worked for but shortly after Abbot Henry Abercrombie also received a judgment in his favour, stating that the burgh had illegally occupied some of the abbey fisheries on the river since at least 1470 and that the burgh should pay the abbey the profits they would normally have received from those fishings over that twenty-five year period.

These two cases were closely linked and six years later both parties agreed to a process of arbitration. The decision was handed down on 21 July 1501 where it was agreed that Cambuskenneth would possess in perpetuity five cobles on the river, an increase of three boats. In return, the abbey was to surrender all claims pertaining to the events of 1365 and the burgh would pay the abbey £20 so they might enjoy peaceable use of the rest of their fishings and cobles, ‘without impediment vexation or trouble to be done or made by the said abbot and convent or their successors or any others on their behalf.’

The abbey, it seems, was not entirely happy with this decision. A change of abbot when David Arnot took over in 1503 may have occasioned a change of mind. By June 1504 the burgh was complaining to the royal council that the abbey had refused to attach their common seal to the arbitration award and was withholding the fish and profits of eleven and a half cobles from the burgh. Clearly, on this occasion the abbey seemed to be acting as the aggressor but this does not quite tell the whole story because a third party had entered the affray to further muddy the waters.

On 8 November 1497 the crown confirmed a charter to Sir John Elphinstone of Airth that included the lands of Craigforth in Stirling. Subsequently on 14 September 1507 the crown confirmed a second charter to his heir, the king’s servant Alexander Elphinstone, of the same lands and fishings. That charter also specified the cruives and fishings located there, which would also certainly have included the ruins of the old abbey cruive that had been destroyed in 1365. On 15 March 1508 the burgh complained to the royal council that Elphinstone had been building more fish weirs on that part of the river which rightfully

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57 Renwick, *Stirling Recs.*, no.xxviii.
58 Renwick, *Stirling Recs.*, no.xxix. The abbey claimed but could produce no proof of illegal occupation before 1470.
59 NRS, B66/25/258 – 59.
60 NRS, B66/25/261.
61 RMS, II, no. 2380.
62 RMS, II, no. 3132.
belonged to the burgh so it looks as though Alexander had been expanding his fishing operations there.\textsuperscript{63}

Almost two years later, on 22 March 1510 the burgh and Elphinstone reached agreement on an amicable and perhaps remarkable solution to this problem. In return for the burgh granting Elphinstone one coble and its net on the river, he resigned in perpetuity to Stirling all of the fish weirs that belonged to his Craigforth property and the coble newly granted to him by the burgh.\textsuperscript{64} Elphinstone also gave the fishers of the burgh the right to pass freely through his lands to reach their fisheries and to draw their nets up on his lands. Finally, Elphinstone also promised to support the burgh in its continuing fight against the abbot and convent of Cambuskenneth over the rights it felt it had in that same stretch of water.\textsuperscript{65} Once again, this agreement can be read as a sign of intense pressure on the burgh’s fishings and the fact that they felt they had to turn to a newly ennobled royal favourite for support in opposing the Augustinians is one measure of the severity of that pressure on ‘their’ fishing resource. Downstream lordly poaching too, which the abbot claimed not to know about, did not help matters and would also have been perceived by the burgh as meaning that increasingly less salmon survived the journey upriver to reach the town fisheries.\textsuperscript{66} 

These problems together help to explain why during the night of 26 July 1531 fifteen inhabitants of the burgh, together with their servants and other accomplices, once again felt that they had to commit violence against the fishing interests of the abbey. This time their targeted fishery lay at Abbots-hude, downstream of the burgh and adjacent to the monastic precinct. On this occasion the miscreants either destroyed or removed the cobles and nets that belonged to the abbey’s four named tenant fishermen there.\textsuperscript{67} The timing of this second raid was deliberate because 26 July was the feast day of St Anne. On this occasion the burgh was not just destroying some fishing gear while the monastic precinct was distracted by a major event, it was also slighting the cults of the mother of the Virgin Mary and Mary herself.

Sixteenth-century sources are silent about any resolution of this last act of violence. This is perhaps understandable at a time of considerable religious unrest in Scotland and elsewhere but the abbey itself was undergoing major changes in management as it moved from being governed by abbots to being governed by commendators.\textsuperscript{68} The second commendator of the abbey was Adam Erskine who held that position between 1562 and 1605, except for a short period around 1585 when Alexander Livingstone briefly held the same office. Adam was nephew of John Erskine, earl of Mar, whose main seat was located in Alloa, downstream from the abbey and almost at the point where the river broadens out into an estuary.

\textsuperscript{63} NRS, B66/25/636.
\textsuperscript{64} In 1609 the fixed annual rent of one of these cruives was 1040 salmon for salting: NRS, GD156/28/8.
\textsuperscript{65} NRS, RH15/96/1.
\textsuperscript{66} NRS, B66/25/636.
\textsuperscript{67} Renwick, Stirling Recs., no.xxxix.
\textsuperscript{68} Watt and Shead, Heads of Religious Houses, p. 28. For a discussion of commendators see Dilworth, ‘The Commendator System in Scotland’, pp. 51-72.
Adam Erskine wasted little time in alienating the lands and fishings of the abbey to
his relative via a series of grants across January 1562, later confirmed by Queen Mary (1542-
67). This must have added some spice to the already poor relationship between Elphinstone,
the burgh, and the abbey since the Elphinstone family also held substantial blocks of property
in Mar including Kildrummy castle, the old principal seat of the earldom. In any event, the
period immediately after the dissolution of the abbey is also important for adding to our
understanding of the salmon fisheries on the Forth because, understandably, Erskine and his
successors were keen to maximize revenue from the old abbey lands.

In the Erskine papers for the period post-1562 there are, for example, records relating
to another two fixed fish weirs downstream from the abbey, all located in the vicinity of
Alloa. These were named as the Insch (island) and Elphinstone cruives and were likely
located at a point in the river where the main channel was split into two around major islands
– locating cruives across one of these channels between island and shore would not have
affected shipping heading upstream to Stirling. The problem is that there is no proof these
constructions pre-date 1562 but the fact that one was owned by the same Elphinstone family
who possessed the lands of Craigforth is interesting. There is also more detail in the Erskine
papers about other methods of fishing employed at ex-abbey fishing sites like the rete vulgo
vocatum stowp nett (net commonly called a stowp net) used at Cuikispow, now part of
Polmaise, by Janet Paterson and her husband Thomas Ewing in 1598.

After 1600, the Erskine family gradually began to tighten their control of fisheries on
the river and a number of court cases and other legal manoeuvres name both ex-abbey fishing
sites and the fishermen working there. One, for example, listed ten of the ex-abbey fishing
sites that employed a total of forty-eight professional fisher people, two of them being
women. According to this list the site at Cambus employed the greatest number of people,
totalling eleven. Once again though, because we have no similar listings for the abbey’s
fishermen at these sites before 1562, it is impossible to know whether lord Erskine had
actually increased the numbers of professional fisher people employed on the river.

Conclusion
The first violent clash now known between abbey of Cambuskenneth and the burgh of
Stirling took place just as new export markets for Scottish salmon were adding to domestic
demand. It may be significant that only the first attack by Stirling burgesses and fishers
destroyed the abbey’s cruves; as both the records of Beauly and contemporary national
legislation make plain, such weir fisheries could easily choke off an entire run of salmon,
depriving upstream rights holders of ‘their’ fish. Might fear of such interception in 1365,
in combination with the other abbey fisheries, have driven men of Stirling to choose immediate
action over the laborious pace of judicial proceedings because they felt they were not

69 NRS, GD124/1/984; GD124/1/978; GD124/1/1000.
70 NRS, GD124/1/170; GD124/1/178.
71 Hume Brown, The Register of the Privy Council of Scotland , new ser v, p. 133.
72 NRS, GD124/1/999; http://www.dsl.ac.uk/entry/snd/stoup (date accessed 22 February 2016).
73 NRS, GD124/6/98.
receiving their fair share of nature’s bounty? They certainly chose their days of violence carefully, whatever the matter.

These records strongly indicate that it was the Augustinians of Cambuskenneth who were the guilty party in this dispute. How much money they made from their salmon fisheries will never be known but it is clear the abbey forwent opportunities for amicable resolution, preferring instead to continue the illegal occupation of burgh fisheries and even encouraging poaching on abbey fisheries by their lordly neighbours. Every flash point between burgh and abbey occurs when the inhabitants of the former react to a situation. Not even the intrusion of a royal favourite into the dispute to support the burgh seems to have made any difference and it is telling that the burgesses of Stirling effectively resorted to paying blackmail in 1501 to try and ensure that the abbey did not interfere further in their fisheries. As testy relations among Elphinstones, Livingstons, and Erskines before and after dissolution confirm, however, salmon fishings were contested objects of desire among lay as well as ecclesiastical estate holders.

Not kings nor monks nor ordinary burgesses likely knew the minutiae of river and fish necessary to catch salmon effectively. Successful draws of a beach seine or harvests from a weir depended on the local environmental expertise of those fishers still visible, even named, among the aggressive burgesses of 1365, those involved in the disputes of the 1490s, and the reportedly victimized abbey dependents of 1531. Such men and their wives appear more anonymously peddling their salmon on Stirling’s market. Their counterparts on other rivers wove seines for Coupar Angus or sold salmon to merchants of Aberdeen. Their social superiors took the catch as dues or teinds and turned this wealth to household consumption or the export trade. Late medieval riversides – or, rather, very specific sites along them – were focal points for interactions among Scots and between Scots and their natural environment. Up the rivers each summer and fall swam the biological riches of the sea for men to appropriate, manage with some evident foresight, and bitterly contest.
Bibliography

Manuscript sources
National Records Scotland (NRS), Gifts and Deposits (GD), 124
National Records Scotland (NRS), Gifts and Deposits (GD), 156
National Records Scotland (NRS), Burgh Records (B), 66
National Records Scotland (NRS), Register House Charters (RH), 15.
England Public Record Office, Plea Rolls (PRO), KB 27/384 30E3, m13d, and KB 227/509 11R2, m1d.

Primary sources
Adolfsson, Herbert, ed., Liber epistularum Guidonis de Basochis, Acta Universitatis
Stockholmiensis: Studia Latina Stockholmiensis, 18 (Stockholm: Almqvist & Wiksell, 1969).
Anderson, Alan O., and Anderson, Marjorie O., ed and trans., Adomnan's Life of Columba
(London: Oliver & Boyd, 1961).
Barrow, G. W. S., and others, ed, Regesta Regum Scotorum, 6 vols to date, (Edinburgh: Edinburgh University Press, 1960
The Charters of David I: The Written Acts of David I King Of Scots, 1124-53 and of his Son Henry Earl of Northumberland, 1139-52, ed. by G. W. S. Barrow (Woodbridge: Boydell Press, 1999).
Batten, Edmund Chisholm, ed., The Charters of the Priory of Beauly with Notices of the Priories of Pluscardine and Ardchattan and of the Family of the Founder John Byset, (Edinburgh: McFarlane & Erskine, 1887).
Bernard, Auguste ed., Cartulaire de l'Abbaye de Savigny suivi du Petit cartulaire de l'Abbaye d'Ainay, 2 vols, Collection de documents inédits sur l'histoire de France. 1. sér. Histoire politique (Paris: Impr. impériale 1853).
Easson, David E., ed., Charters of the Abbey of Coupar Angus, 2 vols, Scottish History Society 3rd ser., 40 & 41 (Edinburgh: T. & A. Constable, 1947).
Fergus, T. David, ed. and trans., Quoniam attachiamenta (Edinburgh: The Stair Society, 1996).
Renwick, R., ed., Charters and Other Documents Relating to the Royal Burgh of Stirling, A.D.1124 – 1705 (Glasgow: Scottish Burgh Records Society, 1884)
Fraser. Sir William, ed., Registrum Monasterii S. Marie De Cambuskenneth (Edinburgh: Grampian Club, 1872).
Greven, Joseph, ed., Jacques de Vitry: Die Exempla aus den Sermones feriales et communes des Jakob von Vitry (Heidelberg: C. Winter, 1914).
Hume Brown, P., ed., The Register of the Privy Council of Scotland 16 vols., (Edinburgh: HMSO, 1904).
Innes, Cosmo, ed., Ledger of Andrew Halyburton Conservator of the Privileges of the Scotch Nation in the Netherlands, 1492-1503 (Edinburgh: Her Majesty’s General Register House, 1867).
Jarecki, Walter, ed., Signa Loquendi (Baden-Baden: Koerner 1981).
Liechtenhan, Eduard, ed. and trans., *Anthimus, De observatione ciborum ad Theodoricum regem Francorum epistula*, Corpus Medicorum Latinorum, vol. 8:1 rev. ed. (Berlin: Academiae Scientiarum: 1963).

Lord Cooper of Culross, ed. and trans., *Regiam majestatem and Quoniam attachiamenta based on the text of Sir John Skene* (Edinburgh: J. Skinner, 1947).

Piekosiński, Franciszek, and Szuski, Józef, ed., *Najstarsze księgi i rachunki miasta Krakowa od r. 1300 do 1400*, Monumenta medii aevi res gestas Poloniae ilustrantia, vol. 4 (Warsaw: Państwowe Wydawnictwo Naukowe, 1965).

Rogers, Charles, ed., *Rental Book of the Cistercian Abbey of Cupar-Angus, with the Breviary of the Register*, 2 vols (London: Printed for the Grampian Club, 1879-80.)

Schwab, Ingo, ed., *Das Prümer Urbar*, Rheinische Urbare, vol. 5, Publikationen der Gesellschaft für Rheinische Geschichtskunde, vol. 20 ( Düsseldorf: Droste Verlag, 1983).

Thomson, John M., ed., *Registrum Magni Sigilli Regum Scotorum in Archivis Publicis Asservatum*, 11 vols. (Edinburgh: Clark Constable, rep.1984).

Unger W. S., ed., *De tol van Iersekeroord. Documenten en rekeningen 1321-1572*. The Hague: Martinus Nijhoff, 1939

**Secondary works**

Balon, Joseph, ‘La pêche et le commerce du poisson dans le comté de Namur au Moyen âge’, *Namurcum*, 19 (1942), 28-31.

Bathgate, Thomas D., ‘Ancient Fish-Traps or Yairs in Scotland’, *Proceedings of the Society of Antiquaries of Scotland*, 83 (1948/49), 98-102.

Cohen, Nathalie, ‘Early Anglo-Saxon fish traps on the River Thames’, in S. Brookes, S. Harrington, and A. Reynolds, ed., *Studies in Early Anglo-Saxon Art and Archaeology. Papers in Honour of Martin G. Welch*, BAR British series 527 (Oxford: Archaeopress, 2011).

Cohn Jr, Samuel K., *Popular Protest in Late Medieval English Towns* (Cambridge: Cambridge University Press, 2013.)

Coy, Jenny, ‘Fish Bones’, in G.G. Astill and S.J. Lobb, ‘Roman and Saxon Deposits at Wraysbury’, *The Archaeological Journal*, 146 (1989), pp. 118-20.

Cowan, Ian B., and Easson, David E., *Medieval Religious Houses: Scotland, With an Appendix on the Houses in the Isle of Man* (2nd edition, London: Longman Group 1976).

Dietz, Klaus, ‘Modern English Cruive ‘wicker salmon-trap’ in D. Kastovsky, and A. Szwedek, ed., *Linguistics across Historical and Geographical Boundaries*, vol. 1 (Berlin and New York: Mouton, De Gruyter, 1986), pp. 277-291.

Dilworth, Mark, ‘The Commendator System in Scotland’, in *Innes Review* 37:2 (1986), 51-72.

Ditchburn, David, *Scotland and Europe: The Medieval Kingdom and its Contacts with Christendom, c.1245-1545*, vol. 1: *Religion, culture and commerce* (East Linton: Tuckwell, 2001), pp. 142-149.

Dyer, Christopher, ‘Do Household Accounts Provide an Accurate Picture of Late Medieval Diet and Food Culture?’, in *La vie matérielle au moyen âge. L’apport des sources littéraires, normatives et de la pratique*, , ed. by Emmanuelle Rassart-Eeckhout, et al., Actes du Colloque international de Louvain-la-Neuve 3-5 octobre 1996, Publications de l'Institut
Fitch, Audrey-Beth, ‘Mothers and Their Sons: Mary and Jesus in Scotland, 1450-1560’, *The Cult of Saints and the Virgin Mary in Medieval Scotland*, ed. by Steve Boardman and Eila Williamson (Woodbridge: The Boydell Press 2010), pp. 159-76.

Fournial, Etienne, *Les villes et l'économie d'échange en Forez aux XIIIe et XIVe siècles* (Paris: C. Klincksieck, 1967).

Gemmill, Elizabeth, and Mayhew, Nicholas, *Changing Values in Medieval Scotland: A Study of Prices, Money, and Weights and Measures* (Cambridge: Cambridge University Press, 1995).

Geraint Jenkins, J., ‘The Trapping of Salmon in the Rivers of England and Wales’, in *The Fishing Culture of the World*, ed. by Gunda, B. 2 vols. (Budapest: Prometheus Books, 1984), i, pp. 239-50

Halard, Xavier, ‘La pêche du saumon en Normandie du XIe au XVe siècle’, *Journal of Medieval History*, 9 (1983), 174-75.

Hale, Alex G., ‘Fish-traps in Scotland: Construction, Supply, Demand and Destruction’, in *Water management in medieval rural economy. Les usages de l'eau en milieu rural au Moyen Âge*, ed. by Jan Klápště, Pamatky archeologické, Supplementum 17, Ruralia V (Prague: Institute of Archaeology, Academy of Sciences of the Czech Republic, 2005), pp. 119-126.

Hammond, Matthew H., ‘Royal and Aristocratic Attitudes to Saints and the Virgin Mary in Twelfth- and Thirteenth-Century Scotland’, in *The Cult of Saints and the Virgin Mary in Medieval Scotland*, ed. by Steve Boardman and Eila Williamson, (Woodbridge: The Boydell Press 2010), pp. 61-86

Heinrich, Dirk, and Heidermanns, F., ‘Lachs’, in *Reallexikon der Germanischen Altertumskunde*, ed. by Heinrich Beck et al., 2nd ed. rev., vol. 17 (Berlin and New York: Walter de Gruyter, 2001), pp. 528-32.

Hoffmann, Richard C. ‘*Salmo Salar* in Late Medieval Scotland: Competition and Conservation for a Riverine Resource’, *Aquatic Sciences*, 77 (2015), 355-366. DOI.1007/s00027-015-0397-4.

Huster-Plogmann, Heide, ‘Fische’ in Sabine Deschler-Erb, Miki Bopp-Iro, and Heide Huster-Plogmann, ‘Die mittelalterlichen Tierknochen aus dem Kreuzgangbereich des Stiftes St. Arnaul’, in *Leben und Sterben in einem mittelalterlichen Kollegiatstift. Archäologische und baugeschichtliche Untersuchungen im ehemaligen Stift St. Arnaul in Saarbrücken*, ed. by Hans-Walter Herrmann and Jan Selmer, (Saarbrücken: [n.p.], 2007), pp. 529-32.

Jamroziak, Emila, *Survival and Success on Medieval Borders: Cistercian Houses in Medieval Scotland and Pomerania from the Twelfth to the Late Fourteenth Century* (Turnhout: Brepols 2011).

Lampen, Angelika, ‘Medieval Fish Weirs: the Archaeological and Historical Evidence’, *Archaeofauna* 5 (1996), 129-34.

Lampen, Angelika, *Fischerei und Fischhandel im Mittelalter: Wirtschafts- und sozialgeschichtliche Untersuchungen nach urkundlichen und archäologischen Quellen des 6. bis 14.Jahrhunderts im Gebiet des Deutschen Reichs*, Historische Studien, Bd. 461( Husum: Matthiesen Verlag, 2000).
Lardin, Philippe, and Jegou, Laurent, ‘La pêche en basse Seine à la fin du Moyen Âge’, in Pêche et pisciculture en eau douce: la rivière et l'étang au Moyen Âge, ed. by Paul Benoît, Frédéric Loridant, and Olivier Mattéoni, Actes des 1res Rencontres internationales de Liessies : 27, 28, 29 avril 1998. [unpaginated booklet and CD-ROM] (Lille: Conseil Général du Nord, 2004).

Łęga, Władysław, Obraz gospodarczy Pomorza Gdańskiego w XII i XIII wieku, Prace Instytutu Zachodniego, 14 (Poznan: Instytut Zachodni, 1949).

Lord Cooper of Culross, Selected Papers 1922 – 1954 (Edinburgh: Oliver and Boyd, 1957).

Miéjac, Emmanuelle, ‘La pêche en Loire dans la Généralité d'Orléans à l'Epoque moderne’, in Pêche et pisciculture en eau douce: la rivière et l'étang au Moyen Âge, ed. by Paul Benoît, Frédéric Loridant, and Olivier Mattéoni, Actes des 1res Rencontres internationales de Liessies : 27, 28, 29 avril 1998. [unpaginated booklet and CD-ROM] (Lille: Conseil Général du Nord, 2004).

Neville, Cynthia J., Land, Law and People in Medieval Scotland (Chippenham: Edinburgh University Press, 2010).

Oram, Richard D., ed., Life on the Edge: The Cistercian Abbey of Balmerino, Fife (Scotland) (Forges-Chimay: Citateux Commentarii Cisterciensis, 2008).

O’Sullivan, Aidan, ‘Medieval Fishweirs on the Deel Estuary, Co. Limerick’, Archaeology of Ireland, 9:2 (summer 1995), 15-17.

O’Sullivan, Aidan, Foragers, Farmers and Fishers in a Coastal Landscape: an Intertidal Archaeological Survey of the Shannon Estuary (Dublin: Royal Irish Academy, 2001).

Pétursdóttir, Sigriður, ‘God's Gift. Salmon Fishing in Iceland in the Middle Ages’, in North Atlantic Fisheries: Markets and Modernization, ed. by Poul Holm and David J. Starkey, Studia Atlantica, 2 (Ejsberg: Fisherí-og Søfartsmuseets Forlag, 1998), pp. 61-64.

Reichstein, H., Untersuchungen an Tierknochen von der Isenburg bei Hattingen/Ruhr (Hattingen, 1981).

Rorke, Martin. ‘Scottish Overseas Trade, 1275/86-1597’ (unpublished doctoral thesis, University of Edinburgh, 2001). Accessed on line as:
http://www.bris.ac.uk/Depts/History/Maritime/Sources/2001phdrorke1.pdf;
http://www.bris.ac.uk/Depts/History/Maritime/Sources/2001phdrorke2.pdf. Accessed 10 March 2016.

Ross, A.D., ‘Recreating the Bannockburn Environment’, in Bannockburn, 1314-2014: Battle and Legacy, ed. by M.A.P. Penman (Donnington: Shaun Tyas, 2016), pp. 96-110.

Ryder, M.L., ‘Remains of Fish and Other Aquatic Animals’ in Dan Brothwell and Eric Higgs (eds.), Science in Archaeology: a Survey of Progress and Research, 2d ed. rev. (London and New York: Thames and Hudson 1969), pp. 386-388.

Santucci, M., ‘Nourritures et symboles dans le Banquet du Faisan et dans Jehan de Saintré’, in Manger et boire au Moyen Age. I. Colloque de Nice, 1982, Publications de la Faculté des lettres et sciences humaines de Nice, no. 27-28, 1ère serie, (Paris: Belles Lettres, 1984), pp. 429-40.

Serrano Larráyoz, Fernando, La mesa del rey. Cocina y régimen alimentario en la corte de Carlos III el noble de Navarra (1411-1425) (Pamplona: Gobierno de Navarra, 2002), pp. 200-07.
Taylor, Alice, ‘Leges Scocie and the Law Codes of David I, William the Lion and Alexander II’, *The Scottish Historical Review*, 87:2, No. 226 (October 2009), 207–288.
Thorold Rogers, James E., *A History of Agriculture and Prices in England*, 7 vols. (Oxford: Clarendon Press, 1866-1902).
Von Brandt, Andres, *Fish Catching Methods of the World* (Stratford-upon-Avon: Fishing News Books Ltd, 1984, 3d ed. rev.).
Von den Driesch, Angela, ‘Fischreste aus der slawisch-deutschen Fürstenburg auf dem Weinberg in Hitzacker (Elbe)’, in *Neue Ausgrabungen und Forschungen in Niedersachsen*, 15 (1982), 395–423.
Watt, Donald E. R., and Shead, Norman F., *The Heads of Religious Houses in Scotland from Twelfth to Sixteenth Centuries* (Edinburgh: Scottish Record Society, 2001).
Went, A.E.J., ‘Ancient Irish Fishing Weirs for Salmon’, in *The Fishing Culture of the World*, vol. 1, ed. by Gunda, B. (Budapest: Prometheus Books, 1984), pp. 455-68.
Williams, David H., *The Welsh Cistercians* (Pontypool: The Griffin Press, 1969).
Winchester, Angus J., *Landscape and Society in Medieval Cumbria* (Edinburgh: John Donald Ltd, 1987).
Wright, Laura, *Sources of London English: Medieval Thames Vocabulary* (Oxford: Clarendon Press, 1996).

**Websites and Electronic Resources**
National Library Scotland: [http://maps.nls.uk/os/view/?sid=74400684](http://maps.nls.uk/os/view/?sid=74400684).
Dictionary Scots Language: [http://www.dsl.ac.uk/](http://www.dsl.ac.uk/)
Records of the Parliaments of Scotland: [http://www.rps.ac.uk/](http://www.rps.ac.uk/)