

Evidence Gathering in Support of Sustainable Scottish Inshore Fisheries

Work Package 5 Final Report

Improving Market Intelligence and Fishery Production Coordination in Scottish Inshore Fisheries – a Pilot Study

Project code: SFS005SIF



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Evidence Gathering in Support of Sustainable Scottish Inshore Fisheries

EFF Project led by Seafish

Work Package 5 – Improving market intelligence and fishery production co-ordination in Scottish Inshore Fisheries – a pilot study

Contractor	Nautilus Consultants, in association with Hambrey Consulting
Principal consultants	Crick Carleton and John Hambrey, with inputs from Tristan Southall and Carole Beaumont
Project commencement	30th June 2014
Project completion	15th July 2015
Project cost	£35,000 plus VAT
Staff input	64 man-days
Purpose	<i>to evaluate the potential for landing an increased proportion of inshore fish catch through informing the markets of local landings availability and advising fishermen of wider market opportunities</i>
Primary Objectives	<p>Objective 1: Generate improved understanding of the actual and/or potential volume, composition and seasonality of inshore fishery products in pilot local areas</p> <p>Objective 2: Establish local market opportunities and demand, and corresponding product/supply requirements.</p> <p>Objective 3: Determine the key factors constraining landings and commercial sale of individual species, and opportunities to address these constraints through improved information/communication systems</p> <p>Objective 4: Pilot provision of improved local supply and quality information for use in support of local marketing initiatives</p> <p>Objective 5: Explore the innovative ways of circumnavigating supply chain obstacles through forms of improved cooperation using innovative trade structures, enhanced data, and better use of the internet</p> <p>Objective 6: Evaluate the potential for better exchange and utilization of local and national market information</p>
Milestones	<p>Milestone 1: Preliminary meetings to agree pilot areas</p> <p>Milestone 2: Meeting with local stakeholders and establishment of steering/liaison group</p> <p>Milestone 3: Steering group meeting: review progress and brainstorm opportunities and constraints</p> <p>Milestone 4: Steering group meeting: potential/nature of improved local supply and market information</p> <p>Milestone 5: Steering group meeting: review of progress with pilot information system</p>

Executive Summary

This work package builds on a broad brush scaling of the volume, composition and geographical disposition of inshore sector landings to inform examination of market linkages, identify supply chain weaknesses, and explore opportunities to increase producer prices – focusing on a small number of case study areas. Analysis has sought to identify opportunities and mechanisms by which the inshore sector might counter the disadvantages it routinely suffers due to its small-scale of operation and its geographic peripherality.

Initial work has focused on reviewing and re-working available catch and landings statistics as a means of better gauging the scale and geographic distribution of inshore landings. This has been followed by field work identifying the extent of problems associated with producer / market linkage, and determining industry interest. This suggested that the nature of the problems to be addressed within the study were not as evident on the ground as would have been expected, and that the industry was not, in general, as exercised by these issues as had been originally thought. In response, it was agreed to refocus resources on more clearly identifying the problems faced by the sector through more intensive field investigation, and only then addressing possible solutions.

Subsequent field work focused on the fishery systems of Skye and Lochalsh, with second tier investigations undertaken in South Uist, Ullapool and surrounds, and the inner Moray Firth. The outcome of these investigations demonstrated that from a commercial perspective the industry is well structured, dynamic and competitive. Overall, fishermen get a fair price for their product in relation to their particular context – traded volume, location, chosen sales route, etc.. Could they do better? Almost undoubtedly yes, but only with investment of substantially more effort, time and capital, all of which are in short supply. This is a route that various entrepreneurs have successfully taken within the geographical areas investigated, but it should be stressed that these are few; this is not a route open to most fishermen, or for which many fishermen are suited. These successful entrepreneurs tend to be serial investors, achieve success by extending their investments along the supply chain, and by working to limit their business risk. They tend to be singletons rather than joint investors or groups of fishermen, and they tend to be committed, focused and driven individuals.

Three other findings stand out in this study. (i) Most businesses involved in trading in live Nephrops (*Nephrops norvegicus*) have suffered at least one significant payment default (mainly through a company folding). This is a high risk business, and using the right (controlled risk) business model is crucial. (ii) Much more local seafood produce could be sold to visitors and tourists than is the case at present and, despite the short length of the tourist season in most parts of Scotland, exploiting this opportunity would yield benefits to both fishermen and caterers alike. That said, it is not within the grasp of fishermen and caterers alone to resolve this – inputs from a third party (more generic tourism, seafood industry, and economic development interests) is required. (iii) Were more seafood to be fed through to the caterers, there remains a mismatch between visitor expectations and the form and quality of seafood presented. There has to be more to the tourism seafood offer than “fish and chips”, yet use of other locally caught material is sparse, dishes often unnecessarily complicated, and the quality of preparation often underwhelming.

Future efforts need to be focused on providing better information to caterers and visitors on how and where to source local seafood, and on how to improve menu design and delivery. In addition, more effort should be made to help fishermen build the skills that would allow them to participate as investors / owners of businesses downstream from fishing – in business planning and in building the capital requirements of such venturing. It is not price information that fishermen lack so much as a better understanding of business opportunities open to them, and more needs to be done to inform caterers and visitors about local seafood.

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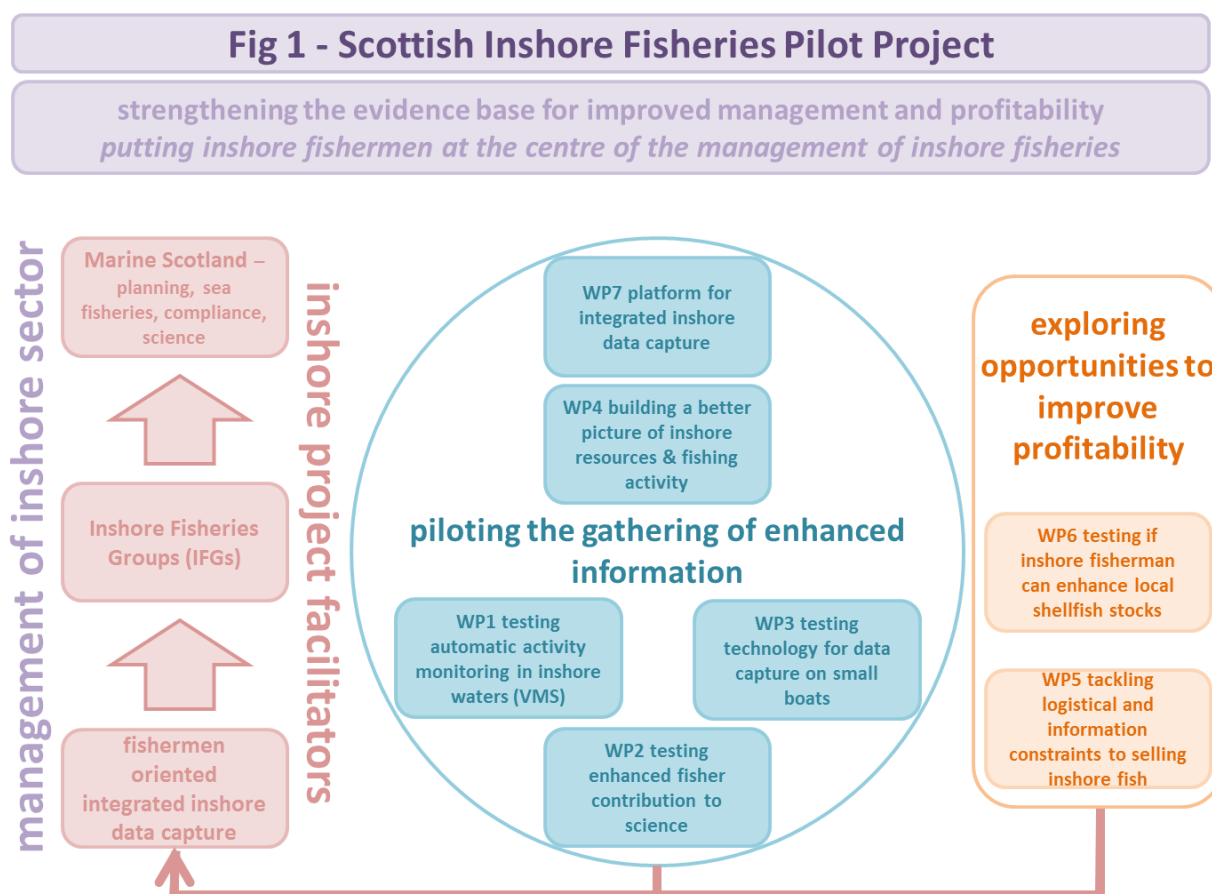
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1 Introduction

1.1 Study context

This study explores opportunities for strengthening the links between inshore fisheries and the market, and identifies possible work-arounds to identified constraints.

Work Package 5 (WP5) forms one of seven studies that make up the Scottish Seafish Inshore Fisheries Project, a programme focused on “evidence gathering in support of sustainable Scottish inshore fisheries”. The inter-relationship between these projects is illustrated in **Fig 1**. WP5 & WP6 are being undertaken jointly, with Nautilus Consultants taking the lead on WP5 and Hambrey Consulting the lead on WP6.



At the core of WP5 is the recognition that on the one hand inshore fishermen tend to be more opportunist in their fishing activities than their larger scale industrial colleagues, allowing them to target a wide range of fish and shellfish species, but on the other that they can be hampered in selling such fish by the small volume and intermittent timing of landings of any one species – characteristics that the core components of the trade channels find it difficult to handle.

And even when reasonable levels of landings are made, the lack of established alternate sales channels for such fish means that producers have to call on the services of the main traders, who are primarily set up to handle large volumes, and who generally treat small-volume supplies as equivalent, from a marketing perspective, to the product of large scale industrial vessels (and thus pay less rather than more for the small volume pickup loads).

Partly as a result of these limitations inshore fishermen do not try and catch all the fish that they could catch – i.e. they are necessarily selective – and their options are further limited for various finfish species by quota constraints (few inshore vessels hold individual quota, and “non-sector” quota allocations are minimal in the extreme). This begs the question of whether different approaches to marketing could unlock these constraints and boost fisherman earnings.

Fishermen and the trade do of course make efforts to over-come such constraints, and a variety of alternate distribution mechanisms are exploited, though application is patchy and with varying degrees of success. Can more be done? It is possible that commercial opportunities are being missed, that there may be room for alternate producer cooperation models, and increased emphasis on a wider range of species could be turned to the advantage of smaller scale producers, at the same time reducing pressure on established stocks.

This study explores these possibilities – as a scoping exercise leading to the piloting of a small number of solutions / initiatives. This is intended to lay the foundation for further initiatives, in part eligible for future structural funding under the new EMFF programme.

1.2 Study purpose

The structure, management and administration of the project is addressed in Chapter 3 of this report. In outline the formal project structure is as follows.

The purpose of this research is:

to evaluate the potential for landing an increased proportion of inshore fish catch through informing the markets of local landings availability and advising fishermen of wider market opportunities.

There are essentially three parts to this project:

- a) **Product opportunities:** developing a better understanding of the inshore catch/landings profile; and potential for other species or changes in species mix;
- b) **Market demand:** developing a better understanding of actual and potential demand for inshore fishery products, primarily in local, but also wider markets;
- c) **Improved information exchange:** piloting and facilitating improved exchange of production and market information, at both local and national levels, including identification of innovative trade cooperation models and wider utilisation of information technologies, to the benefit of both producers and traders/consumers.

Its formal objectives are:

- Objective 1:** Generate improved understanding of the actual and/or potential volume, composition and seasonality of inshore fishery products in pilot local areas.
- Objective 2:** Establish local market opportunities and demand, and corresponding product/supply requirements.
- Objective 3:** Determine the key factors constraining landings and commercial sale of individual species, and opportunities to address these constraints through improved information/communication systems.
- Objective 4:** Pilot provision of improved local supply and quality information for use in support of local marketing initiatives.
- Objective 5:** Explore the innovative ways of circumnavigating supply chain obstacles through forms of improved cooperation using innovative trade structures,

enhanced data, and better use of the internet.

Objective 6: Evaluate the potential for better exchange and utilization of local and national market information

The research plan focuses on working closely with two or three fishing communities, taking forward issues informed by their experience and needs, and supported by quantitative and qualitative data collated both at national and local levels. Essential base data are the actual and potential availability and seasonality of different species, relevant demand/quality issues, logistics, market information and existing and potential trade structures. This analysis has then been used to inform piloting of improved supply and availability information for use in support of local marketing initiatives. The potential to extend this information to inform wider markets is also explored. The study also looks at ways in which market intelligence gathered through national schemes or bodies can be more effectively disseminated to and better used by inshore fishermen to further enhance opportunity.

1.3 Study focus

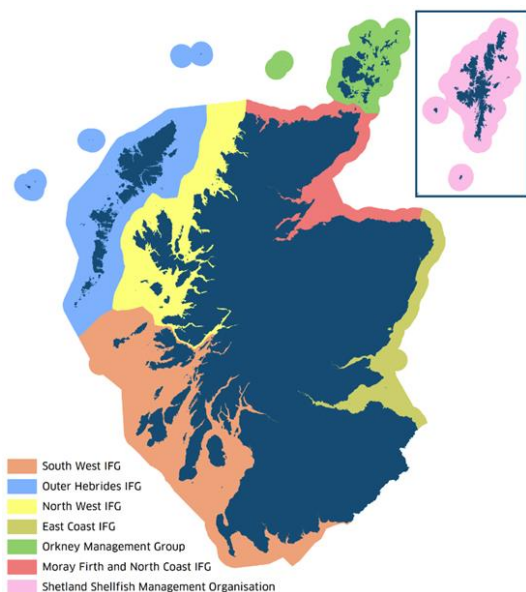
This is the first study in recent times to integrate and synthesise knowledge relating to inshore fishing opportunities, storage and logistics, and market demand at local, national and (to a lesser extent) international levels. While the scope is challenging, the need is clear, and the findings should be of immediate value to inshore fisheries and associated supply chains and related sub-sectors.

A wider range of species than are typically traded are caught or could be caught by inshore fishery vessels (core inshore traded products are Nephrops, lobster and brown crab). Many of these other species (shellfish, demersal and small pelagic) are not actively or effectively marketed, and it is possible that some commercial opportunities are being missed, and that increased emphasis on a wider range of species could generate good returns while at the same time reducing pressure on established stocks.

Potential constraints to the landing and sale of a wider range of species are the concentration of trading activities around a few specialist port-based traders (and reliance on a limited number of supply chains that they feed into), with a focus on those few species that are caught and landed regularly and in quantity. But if alternate ways of addressing the infrequency and limited volumes of landings of what might be termed “minor” species could be identified – directing to short-length local supply chains, collaborating between vessels and between ports to bulk up quantities, specialising in supply of mixed products, linking to niche markets, and better use of available IT and the Internet – these could get around some of these constraints, add to fisherman income, and release pressure on stocks of the relatively fewer “major” species.

This study examines the actual and potential availability and seasonality of different species, as well as relevant demand/quality issues, logistics, market information and existing and potential trade structures. This analysis informs piloting of improved supply and availability information for use in support of local marketing

Fig 2 – Scottish Inshore Fishery /Groups, and inshore waters extending 6 miles from baselines & archipelagos



initiatives. The potential to extend this information to inform wider markets is also explored. We also explore ways in which market intelligence gathered through national schemes or bodies can be more effectively disseminated to and better used by inshore fishermen to further enhance opportunity.

1.4 Study area

The study area covers all Scottish inshore waters, as illustrated in **Fig 2**. In the UK, inshore waters are defined as waters inside the 6 mile Territorial Limit; but applying the UNCLOS archipelago principles, for west and north Scotland the term covers a significantly larger area, including deeper water areas, and areas fished by significantly larger vessels than are typical of east coast inshore fisheries. Thus, along the eastern coast of Scotland this inshore zone extends slightly further than the six miles to sea to incorporate the inner Moray, Cromarty and Dornoch Firths, and further to the south the Tay and the Firth of Forth, but in general the zone follows the line of the coast. But not so on the west coast. Here the scattering of offshore islands means that the area designated as inshore covers substantially larger water bodies, including the Minches, the waters around the Small Isles, and the Clyde. For practical purposes, the study focuses on inshore fishing exploited by the smaller vessels in the fleet – generally those under 15m in length, but with a greater focus on those under 12m and under 10m in length. Similarly, the area fished is that shown in **Fig 2**, but with increased focus on that within 6nm of shore, and that within 3nm of shore.

Management of the fisheries of these waters is the responsibility of the Scottish government – through Marine Scotland. But since the late 2000s six Inshore Fisheries Groups (IFGs) have been formed as a focal point for collating stakeholder input on matters to do with management of the inshore zone – again, as illustrated in **Fig 2**¹.

1.5 Report structure

The report is laid out in logical sequence, starting from a high level overview, to a more regional view, to system analysis and problem identification, and then more specific assessment, treatment and follow-on.

Chapter 2 seeks to scale the extent and location of fishing activity around Scotland, focusing down to catches made in the inshore zone. This is also presented in the context of administrative, management and commercial infrastructures – regions, fishery offices, IFG and sales and distribution logistics.

Chapter 3 looks in more detail at the regional diversity of activity, and how this impacts on the structure of the seafood industry, and on the practical and commercial issues facing small-scale and inshore fisheries and their access to local, regional, national and international markets.

Chapter 4 focuses down to case study areas as a means of ground-truthing the nature of fishery / distribution systems already in place, what problems fishermen and others in the seafood supply chains are experiencing, and the extent to which the various actors have or have not responded or adapted to these problems and constraints. A discussion of findings allows clearer identification of where problems exist, and perhaps more importantly where perceived constraints are unfounded. This analysis guides further activity within the project – in four core areas:

- Perceived constraints that are not in reality problems
- Constraints / problems where others have found workarounds

¹ Inshore fisheries in the Shetland Isles are covered by the Zetland Act and already subject to local management.

- Constraints / problems that warrant more locally specific solution
- Constraints / problems where novel / innovative approaches could yield dividends.

Chapter 5 draws together identification of constraints and opportunities, how others have tackled these and similar issues, and what the Scottish inshore sector / supply chain might do about it.

Chapter 6 draws study findings together and summarises the main conclusions arising from the study, and some additional areas of work that could be explored in future initiatives.

2 Overview of the geography of Scottish inshore fisheries

Inshore fishing is prosecuted by a range of fishing vessels deploying a range of gears. Vessels tend to be on the smaller side, but this is not always so. Formally (in a legal sense), the inshore zone is recognised as that lying within 6nm of shore. With an irregular coastline and/or islands close to the shore, the baselines for measurement of the inshore zone are extended to cover lines between headlands or across bays, or between islands and islands and mainland. In the context, for example, the whole of the Minches are considered as inshore.

Key characteristics of the fisheries of the inshore zone are the predominance of shellfish in the catch, and that landings are predominantly made to small ports, harbours and landing places. Average landings (all species) to Scottish ports in the years 2009 to 2013 had a first-hand value of a little over £430M per year. Seventy-five per cent of this was secured from landings to the top ten grossing ports. A further 256 ports, harbours and landing places accounted for the remaining 25 per cent of the value.

A distinguishing feature of this split is that landings to the small ports comprise very little finfish, whereas these larger ports were responsible, by value, for 90 per cent of all demersal landings and 85 per cent of all pelagic landings. And in the shellfish category, these top ten ports were also responsible for 70 per cent of trawled Nephrops landings, by value.

These characteristics dictate the core commercial infrastructure of the seafood sector, with the bulk of product handled at an industrial scale through large ports, and correspondingly channelled through large volume supply chains. In most such systems, first hand sale is achieved by placing the product on a fish auction, or by selling against contract. For small-scale and small-volume fisheries typical of the inshore sector, it can cost more for the key operators within these systems to handle the smaller volumes of product landed to small ports and landing places, and this, in a general sense, is factored into the prices offered. Where a small-volume pick-up service covers a regular routing in general the same prices are offered to all. For landings of trawl and creel caught Nephrops from the inshore sector, prices paid tend to be against price lists provided by each buyer, and these are relatively standard, but may be varied according to market conditions. Prices paid for crab and lobster tend to more clearly reflect current market conditions. So even for the likes of creel caught Nephrops, the characteristics of the sales systems tend to reflect a standardised large volume supply chain.

Where differences in prices paid between large volume and small volume systems occur is where, for example, irregular supplies / purchases are made, when the buyer may tend to quote a one-off, spot-market, price which may be lower than that available to a buyer's regular suppliers. There may also be differences where a supplier is seeking to sell very small quantities of more unusual species, and there will also tend to be differences between the prices paid by a specialist wholesaler dealing in relatively small quantities of high quality product and a high volume fish trader dealing at a more industrial scale. Thus it becomes unrealistic to expect a high volume trader in small pelagics to pay a premium for small volumes of handline caught mackerel. Similarly it is unrealistic for a seasonal, part-time fisherman to command the same price for one-off sales as a regular all-year round fishermen selling to the same buyer. It is in the context of the differences between standardised large volume systems and small-volume more bespoke systems that smaller scale operators are presented with something of a quandary – accept the ruling large volume prices, or find alternate distribution systems better suited to the smaller-scale producer. Needless to say, this is easier said than done. Most small-scale inshore operators return to port each day – and thus they land no more than day old fish. This is a

product quality that makes such landings special – but only for some buyers. Of necessity inshore fishermen need to sell the bulk of their landings through conventional sales routes – small-volume less conventional routes could not cope with the volume. But these fishermen also do or could land small volumes of a wide range of fish and shellfish, but these conventional routes have difficulty handling such landings. Finding the basis for a better balance forms the core of this pilot project.

2.1 Institutional arrangements

Administrative areas: Management of Scottish fisheries rests with Marine Scotland through a central administration based in Edinburgh and Marine Scotland Science based in Aberdeen, and a network of regional frontline offices located at major ports around the Scottish coast. The location of these offices is typically at larger ports (usually a port with a port auction), and their arrangement is primarily dictated by the logistics of over-seeing activities in a given area.

Inshore Fisheries Groups: The Inshore Fishery Group (IFG) boundaries have been determined based on the reasonable division of the coastline between six different entities best representing the geography of inshore waters (plus the Shetland Islands Inshore Area managed by the SI Management Organisation). These boundaries do not always coincide with the administrative area divisions. *[It is of note that the original idea had been to establish 11, but this was subsequently reduced to 6. The draft National Marine Plan published in March 2015 proposes 11 marine regions – where the area covered by the South West IFG is divided into 3, the area covered by the North and North West IFG is divided into 2, and the East Coast IFG is divided into 2.]*

Commercial logistical zone: The seafood trade – mediating between where fish is landed and the downstream elements of the supply chain – tends to operate around logistical transport hubs. These hubs are generally, but not always, main ports, but their draw-down areas do not always coincide with either the administrative districts or the IFG boundaries.

These distinctions are illustrated in **Figs 2, 3 & 4²**.

2.2 Key characteristics of landings to Scottish ports

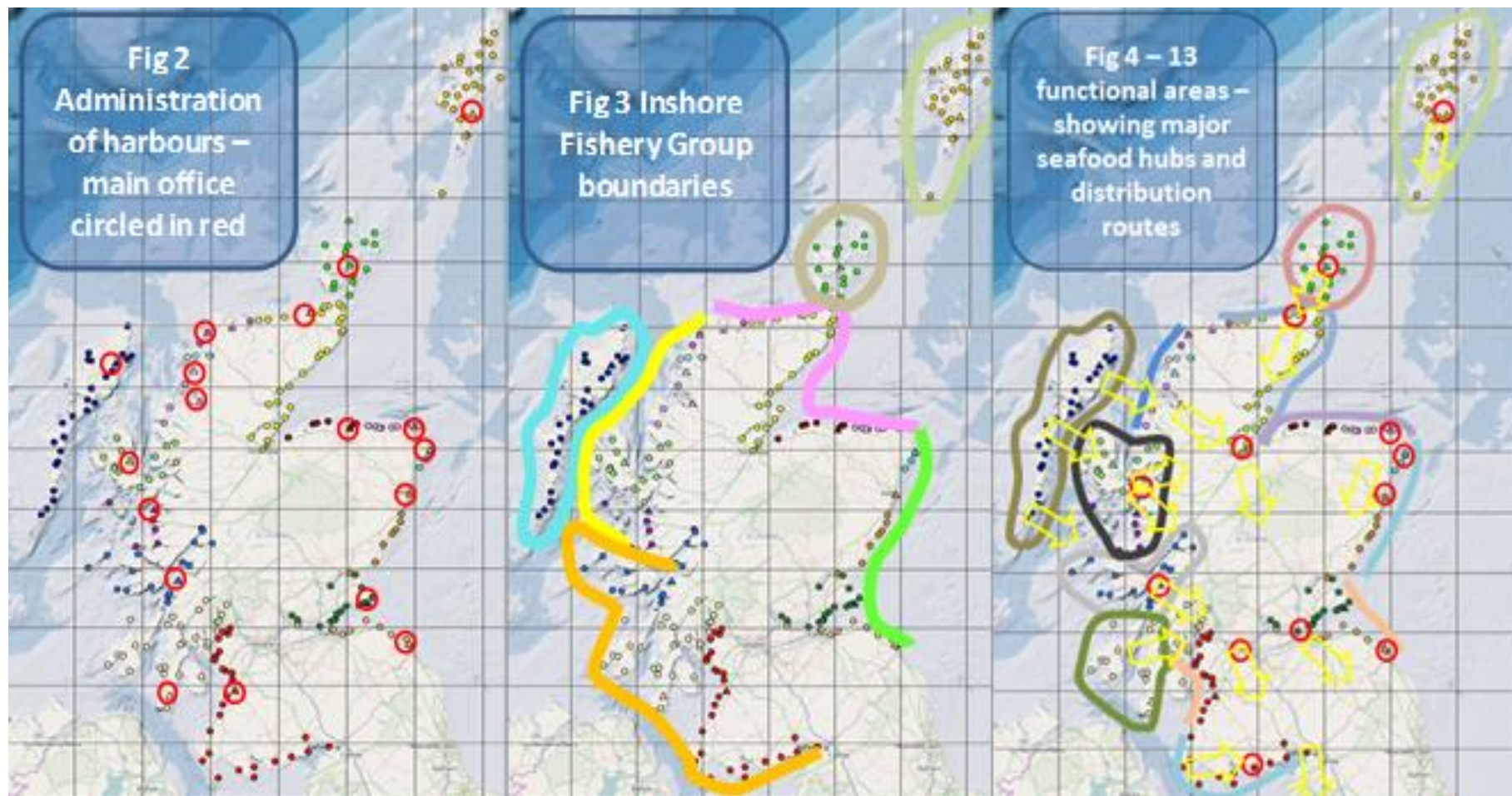
The value of landings to Scottish ports in 2013 totalled £402M, as illustrated in **Table 1**. Approximately 75% of landings come from use of mobile gear; 76% of landed value is accounted for by the top ten grossing ports, and a further 28% by the other ports grossing more than £1M each. This leaves the remaining 238 ports responsible for landings valued at £34M, 8% of total value.

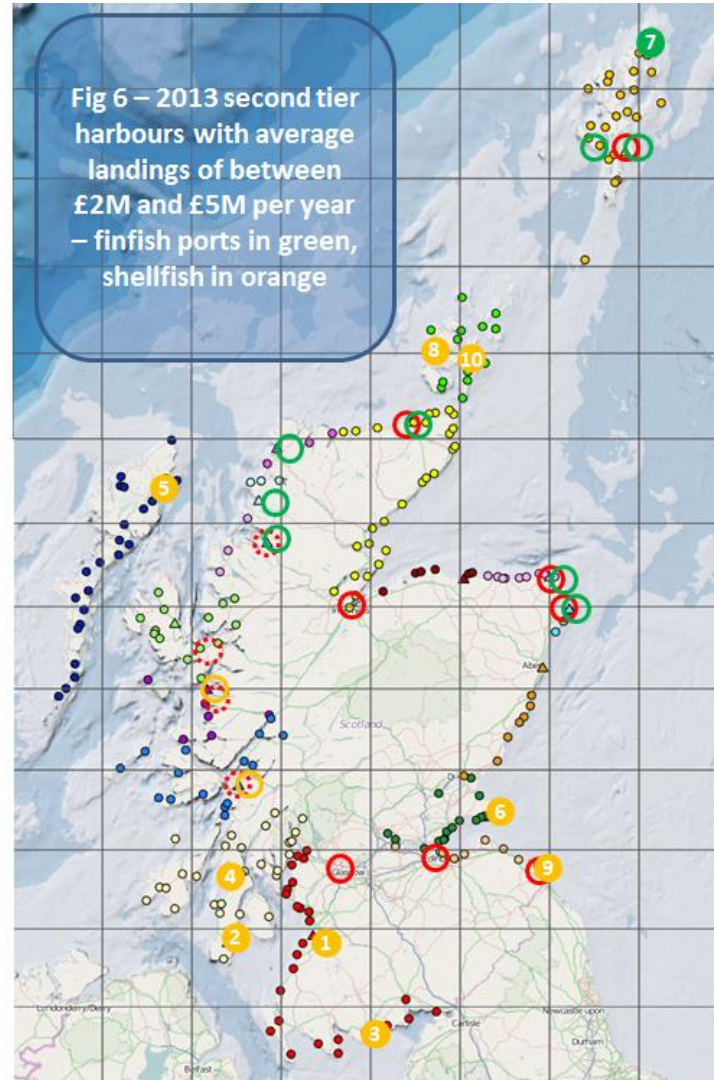
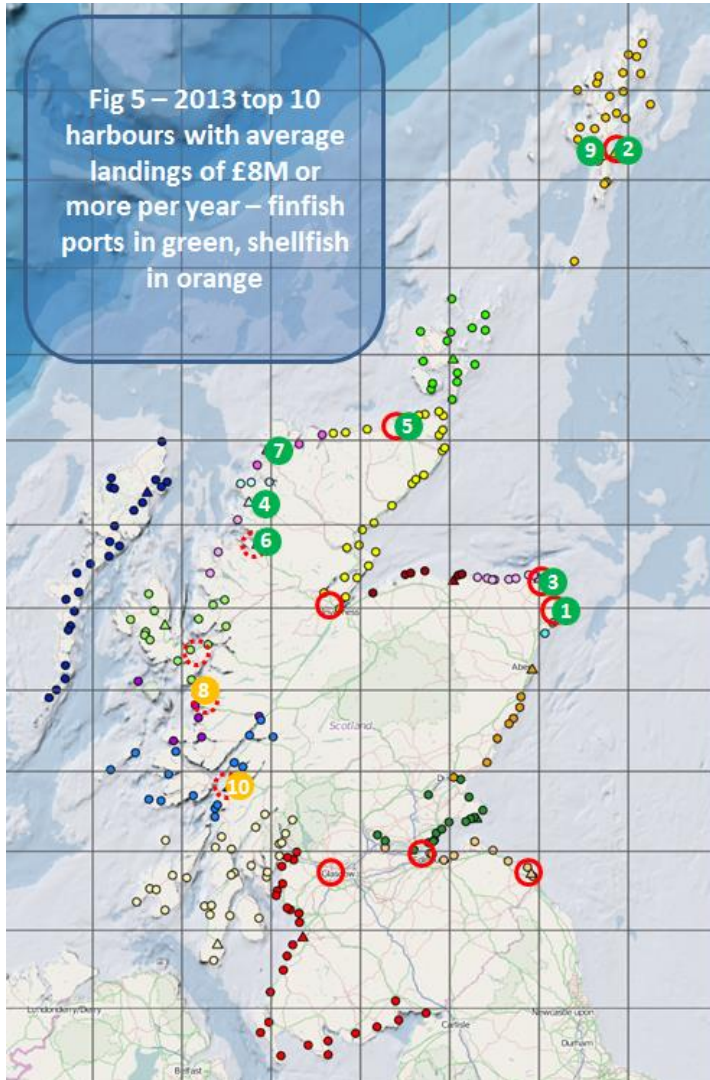
By species group, 43% of landed value is down to demersal finfish, 25% to pelagics, and 32% to shellfish. 99% of demersal landings are made to the top 28 grossing ports, as are 100% of all pelagic landings, 85% of trawled Nephrops, 77% of all scallops (assumed to be dredged), 44% of creel caught Nephrops, and 66% of all other shellfish (mainly lobster and crab). 39% of all landings from static gear are made to small ports, as are 18% of dredged or trawl caught shellfish, whilst less than 1% of finfish are made to these ports.

By vessel size, 18% of all landed value derives from under 10m vessels. 56% of under 10m landings are made to the top ten grossing ports, and a further 19% to the remaining ports grossing over £1M each – i.e. 75% of landings from the under 10m fleet, by value, are made to the large ports. 25% of under 10m landings are spread across the 236 smaller ports and harbours, valued at some £18M. This compares with £16M of landings to these same ports

² Note, Shetland has its own legislation for management of its inshore waters, and as such has not been designated as an IFG, and is not included within this pilot study.

Different ways of viewing the geographical organisation of the industry





deriving from the over 10m fleet.

These relationships are illustrated in **Figs 5 & 6**.

Key elements to be taken from this analysis are that:

- the largest proportion of finfish landings is heavily concentrated around the primary ports of NE Scotland, the Shetland Islands, and outliers in Scrabster, Kinlochbervie, Lochinver and Ullapool;
- shellfish predominates in landings to second tier ports, but also to the primary ports Oban, Mallaig and Fraserburgh; trawl caught Nephrops predominate
- the transport hubs of Ullapool, Kyle, Mallaig and Oban act more as gateways for movement of product from the west coast and islands to processor / distribution hubs elsewhere in Scotland;
- 8% of all landed value is made to small ports and harbours grossing less than £1M per year - £18M from the under 10m fleet, and £16M from the over 10 fleet;
- landings to these small ports and harbours are dominated by shellfish, and by shellfish captured using static gear.

Table 1 – Landed value by under and over 10m fleets, by port turnover, 2013

	demersal	pelagic	scallops	trawl Nephrops	creel Nephrops	oth. shellfish	total value
over 10m							
10 largest ports (>£10M)	£135M	£93M	£8M	£22M	£0M	£7M	£265M
18 next largest (>£1M)	£9	£0M	£13M	£17M	£2M	£7M	£49M
238 smaller ports (<£1M)	£1M	£0M	£6M	£5M	£2M	£3M	£16M
10m & under							
10 largest ports (>£10M)	£27M	£8M	£1M	£0M	£1M	£3M	£40M
18 next largest (>£1M)	£1M	£0M	£1M	£2M	£3M	£8M	£14M
238 smaller ports (<£1M)	£0M	£0M	£1M	£2M	£5M	£10M	£18M
Totals	£173M	£101M	£30M	£48M	£13M	£38M	£402M

2.3 The role of inshore fisheries in the landings mix

As a means of gaining greater insight into the role of fishing from the inshore, small-scale, sector, the standard catch and landings data-set has been reworked to better distinguish catches made in the 6nm inshore zone, and the 6 to 12nm zone, and in the waters beyond this zone³. This has required the division of catches logged to individual ICES statistical rectangles to inside and outside a zonal boundary. Necessarily this involves a judgement call – based on knowledge of fisheries, seabed features, and fisher behaviour (the specific methodology used is shown in **Appendix 2**).

For analytical purposes, this dataset has been collated on the basis of the 13 market cells illustrated in **Fig 4**. Aggregated figures are presented in **Table 2**.

This analysis indicates that £91M of Scottish landings, excluding inshore catches from the Shetland Isles, is caught within the IFG areas – amounting to 28% of the equivalent total landings⁴. Roughly two-thirds of this is derived from the over 10m fleet, and a third from the

³ a piece of work commissioned separately to an outside contractor under this project so as to comply with data confidentiality restrictions; the resulting dataset does not cover the fisheries of the Shetland Islands

⁴ This data was collected in logbooks until 2012, and for that year the equivalent figure was £87M, suggesting acceptably close correspondence between this and the allocation methodology employed in adjusting FIN data for 2012 and 2013

Table 2 – 2013 landings to Scottish ports of fish estimated to have been caught within IFG / 6nm limit (£'000s)

	Nephrops	scallops	queen scallops	lobster	edible crabs	velvet crabs	other shellfish	finfish	Grand Total
from the >10m fleet									
Solway	219	825	458	54	4		100	0	1,660
Clyde	3,391	372	21	0			150	1	3,935
Kintyre & Isles	7,008	1,845	0	79	62	24	368	22	9,406
Oban & Mull	2,310	1,800	13	146	334	67	95	10	4,775
Western Isles	4,460	975		206	108	3	17	137	5,905
Skye & Lochaber	8,522	835		67	389	19	111	730	10,674
North West	4,919	300		27	993	1	15	245	6,501
Orkney	2			1	3	0		0	6
NE Highlands	76	1,239		99	1,107	7	233	1,572	4,333
Moray coast	504	230	3	9	19	2	393	57	1,216
Peterhead & Aberdeen	82	1,339		76	133	2	342	461	2,436
Southeast	2,928	392		267	40	9	97	39	3,772
Shetland		10					1	54	64
unallocated	1,453	622	208	362	2	9	584	114	3,353
Grand Total	35,873	10,785	704	1,391	3,194	142	2,505	3,442	58,036

Table 2 (cont'd) – 2013 landings to Scottish ports of fish estimated to have been caught within IFG / 6nm limit (£'000s)

	Nephrops	scallops	queen scallops	lobster	edible crabs	velvet crabs	other shellfish	finfish	Grand Total
from the <10m fleet									
Solway	176	36		447	5		905	19	1,588
Clyde	1,477	2		34	12	1	400	1	1,928
Kintyre & Isles	1,306	554	0	208	267	269	363	0	2,966
Oban & Mull	998	294		368	240	282	185	0	2,367
Western Isles	1,601	37		702	815	570	44	1	3,771
Skye & Lochaber	3,887	233		127	415	163	100	0	4,926
North West	1,605	75		117	110	28	0	1	1,937
Orkney	11	183	8	561	385	703	196	6	2,052
NE Highlands	154	9		756	876	159	150	3	2,107
Moray coast	392	2		310	561	78	358	192	1,893
Peterhead & Aberdeen	14			1,623	480	181	14	89	2,402
Southeast	1,160	0		2,704	356	133	247	90	4,691
Shetland				0	0	1		-	2
unallocated	42	116	-	1	0	0	54	0	213
Grand Total	12,825	1,541	8	7,960	4,522	2,569	3,016	403	32,843

Table 3 – 2013 landed value, by IFG, by gear and species, (£'000s)

Row Labels	mobile gear				
	Nephrops	finfish	scallop	queens	other
SW IFG	16.1	0.5	5.4	0.6	0.2
WI IFG	4.9	0.4	1.0	-	0.0
NW IFG	9.5	0.6	1.7	-	0.0
OMG	0.0	1.2	0.7	0.0	0.0
NE IFG	0.8	0.5	0.7	-	0.1
EC IFG	4.1	0.3	1.7	-	0.1
Grand Total	35.3	3.4	11.1	0.6	0.5

Row Labels	lining		static					hand gathering	
	mackerel	other	Nephrops	lobster	edible crabs	velvet	other	scallops	other
SW IFG	0.0	0.0	4.4	1.4	1.0	0.7	0.9	0.4	2.1
WI IFG	-	0.0	2.8	0.9	2.2	0.6	0.1	0.1	0.0
NW IFG	0.0	0.0	5.9	0.3	1.0	0.2	0.1	0.4	0.1
OMG	0.0	0.0	0.0	0.7	1.1	0.7	0.2	0.1	0.1
NE IFG	0.0	0.0	0.1	0.9	0.9	0.2	0.2	0.0	0.0
EC IFG	0.3	0.0	0.2	5.2	1.5	0.4	0.2	-	0.1
Grand Total	0.3	0.0	13.3	9.3	7.7	2.7	1.7	0.9	2.4

under 10m fleet, with 54% of value from Nephrops (predominantly trawl), 14% from scallop (predominantly dredge), 10% from lobster, and 8% from edible crab. Very little of this product is landed to the larger ports. A second version of this dataset – high-lighting gear rather than vessel size⁵ – provides a further level of insight into fishing patterns (**Table 3**).

These figures indicate that 57% of landed value from the inshore sector comes from the activities of mobile gear, and 43% from static. A little under three quarters of the Nephrops catch (identified as 54% of all inshore landings) comes from trawling, and it is recognised that most of this is from vessels over 10m in length (though such vessels would be expected to be less than 15m in length, and many less than 12m in length). The other big item is scallops, and over ninety per cent of this comes from dredging, with less than 8% dive caught.

Put another way, most small-scale fishing activity (vessels under 10m in length) conducted in the inshore area uses static gear. This is illustrated, using the figures shown in **Table 4**, in **Figs 7 & 8**, with landed value allocated per logistical cell. This shows that landed value from the over-10m fleet is greatest along the west of Scotland, and that a similar but more muted pattern applies for the under 10m fleet. It should be noted, however, that most Nephrops trawl catches along the west coast are encompassed within what is termed the inshore zone, because this demarcation exaggerates the 6nm zone by applying the archipelago principle (and includes, for example, the whole of the Minches). It is worth noting that the largest east coast Nephrops trawl fishery takes place on the Fladden Grounds, lying to the east of the mouth of the Moray Firth – i.e. outside the Moray Firth inshore zone. These catches are landed predominantly to Fraserburgh and other NE ports.

2.4 Implications for this study

The greatest values of landings to Scotland are made to a few large ports, and these predominantly by large vessels fishing well outside the inshore sector. This is backed up by more explicit examination of catches made from within the inshore zone which shows that very little of such catch is landed to the large ports. Landings from the industrial scale fleet are concentrated on a few large ports.

Less than 5% of finfish landings are made outside the main ports, and these are mainly landed to second tier ports. They form a negligible proportion of landings to the small ports and harbours. Again, finfish is caught predominantly by the industrial scale fleet and landed to a small number of large ports – activities are highly concentrated.

Landings to the small ports and harbours are dominated by shellfish – drawn mainly from activities in the inshore zone, but supplemented by landings of Nephrops and scallops caught outside the zone using mobile gear.

Focusing on shellfish caught within the inshore zone, trawl caught Nephrops and dredge caught scallops figure largely in such landings, and these tend to be landed to a small number of the smaller ports and harbours – i.e. landings are concentrated.

By contrast, landings from static fisheries, dominated by Nephrops, lobster and edible crab, are widely distributed across the smaller ports and harbours. In general these landings are not concentrated.

Most catches and landings of creel caught Nephrops are made along the west coast of Scotland and its associated islands.

There are three principal west coast gateways for channelling static gear caught shellfish to market – West Loch Tarbert, Oban and Kyle.

⁵ These re-structured datasets do not allow cross-tabulation of gear and size of vessel

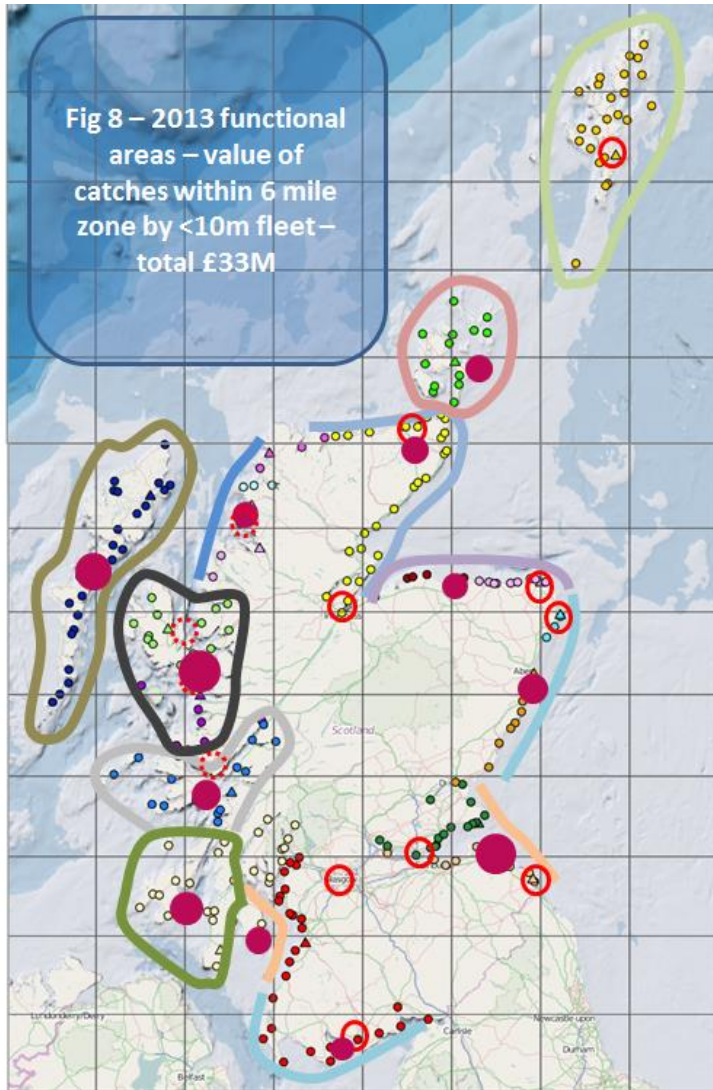
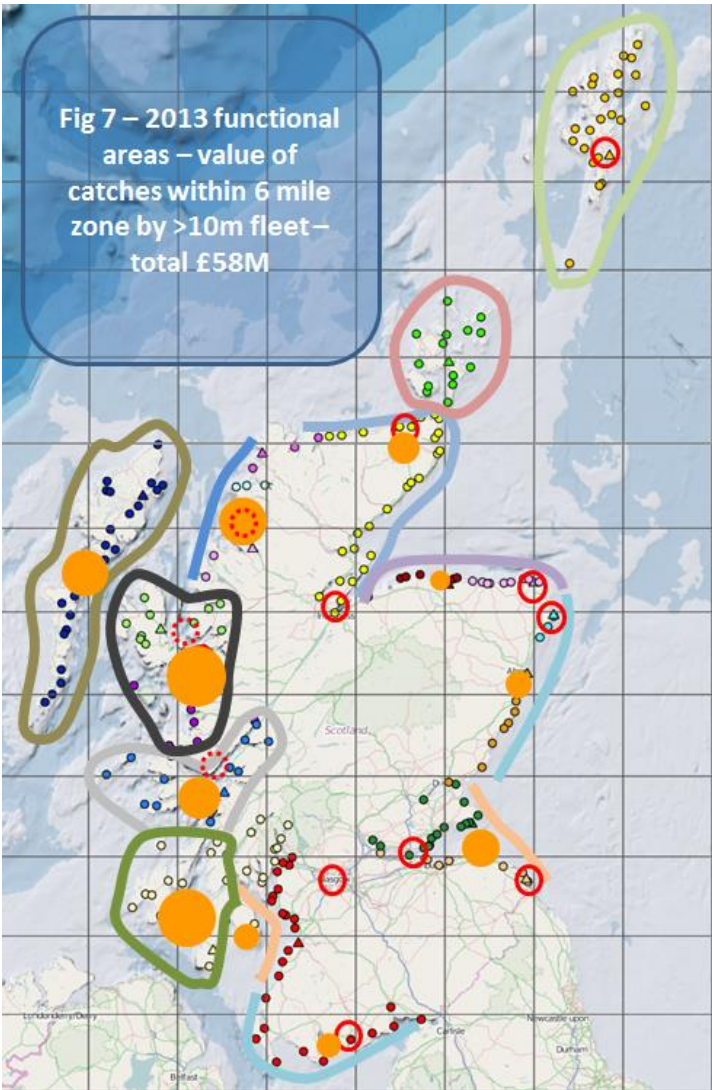


Table 4 – Value of landings, 2012, by Scottish under 10m fleet, by functional areas

	Grand Total	Lobsters	Crabs	Nephrops	Scallops	Squid	Shrimps and Prawns	Wheleks	Mussels	Cockles	Other shellfish	demersals
Dumfries & Galloway	£1.6	£0.5	£0.4	£0.2	£0.0	£0.0	£0.0	£0.1	£0.0	£0.0	£0.3	£0.1
Clyde	£11.0	£8.2	£0.2	£2.2	£0.1	£0.0	£0.0	£0.0	£0.0	£0.0	£0.3	£0.1
Kintyre / Small Isles	£13.7	£4.7	£3.6	£2.4	£2.1	£0.0	£0.0	£0.1	£0.0	£0.0	£0.8	£0.1
Mallaig / Skye	£8.5	£1.7	£1.9	£4.2	£0.4	£0.0	£0.0	£0.0	£0.0	£0.0	£0.2	£0.0
Western Isles	£5.7	£2.0	£1.6	£1.2	£0.1	£0.0	£0.2	£0.0	£0.0	£0.0	£0.6	£0.0
North West	£25.3	£6.3	£1.7	£2.1	£0.2	£0.9	£0.1	£0.0	£0.0	£0.0	£0.6	£13.4
North Highlands	£5.6	£2.1	£1.2	£0.3	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£0.0	£2.0
Orkney	£4.3	£1.6	£1.3	£0.2	£0.8	£0.0	£0.0	£0.0	£0.0	£0.0	£0.1	£0.2
Shetland Isles	£14.3	£0.6	£1.2	£0.2	£0.7	£0.6	£0.0	£0.0	£0.0	£0.0	£0.0	£10.9
South Moray coast	£2.4	£0.8	£0.8	£0.2	£0.0	£0.1	£0.0	£0.0	£0.0	£0.0	£0.0	£0.4
Peterhead south	£36.5	£0.8	£0.8	£0.0	£0.0	£0.0	£0.0	£0.1	£0.0	£0.0	£0.0	£34.7
Dundee south	£5.2	£1.8	£1.3	£0.9	£0.0	£0.0	£0.0	£0.1	£0.0	£0.0	£0.5	£0.6
	£157.9	£31.3	£16.0	£14.0	£4.4	£1.6	£0.4	£0.3	£0.0	£0.0	£3.2	£62.6

Note: landings of £1M and more shown in colour

3 Study methodology and work plan

3.1 Approach and methodology as planned

The core focus of this pilot study is to detail the extent to which the activities, and more critically the income, of fishermen operating in the inshore zone are subject to market related constraints. Once detailed, the intent is then to explore ways of addressing and/or removing such constraints.

Core argumentation supporting such focus is that:

- the small-scale and geographic peripherality of most inshore fishing activities and infrastructures means they operate at a disadvantage in the market place;
- the way the inshore sector is organised and operates perpetuates such disadvantages;
- inshore fishermen could catch a wider range of species, but do not because it is difficult to sell such fish;
- inshore fishermen would be incentivised to overcome some of these disadvantages if they were made more aware of market opportunities; and
- the market would be more open to sourcing from small-scale fisheries if they had more information about what, where and when fish might be available.

To explore these elements, the study has been designed to meet the following objectives:

- Objective 1:** Generate improved understanding of the actual and/or potential volume, composition and seasonality of inshore fishery products in pilot local areas.
- Objective 2:** Establish local market opportunities and demand, and corresponding product/supply requirements.
- Objective 3:** Determine the key factors constraining landings and commercial sale of individual species, and opportunities to address these constraints through improved information/communication systems.
- Objective 4:** Pilot provision of improved local supply and quality information for use in support of local marketing initiatives.
- Objective 5:** Explore the innovative ways of circumnavigating supply chain obstacles through forms of improved cooperation using innovative trade structures, enhanced data, and better use of the internet.
- Objective 6:** Evaluate the potential for better exchange and utilisation of local and national market information

Operationally, this was to be taken forward in four phases:

Phase 1 – scope out the scale of the supply-side issues, based largely on examination of available statistics (Objective 1)

Phase 2 – scope out the nature of supply chain issues (notably linkage between producers, distribution logistics and consumers) through meetings / discussions with fishermen and industry representatives (Objective 2)

Phase 3 – identify two or three suitable test beds in the form of case study areas to explore these supply chain issues in greater detail (Objective 3)

Phase 4 – take forward a small number of issues to solution, using examples derived within the case studies (Objectives 4 – supply information; Objective 5 – trading structures; and Objective 6 – market information).

In terms of maintaining study relevance and supporting operational logistics, it was proposed to encourage formation of industry touchstone or focus groups in each of the case study areas. Overall study progress would be monitored through periodic coordination meetings with the other project work package providers. In this context, in the original work package design milestone points were nominated as shown in **Table 5**.

Table 5 – Schedule of project milestones as indicated in the original project brief

M1	July 2014	Inception meeting with Seafish and Programme managers
M2	August 2014	Inception meeting in pilot area(s) and establishment of steering-liaison group
M3	November 2014	Steering group meeting: review progress and brainstorm opportunities and constraints
M4	January 2015	Steering group meeting: potential / nature of improved local supply and market information
M5	April 2015	Steering group meeting: review of progress with pilot information system
R1	end May 2015	Draft final report submitted
M6	June 2015	Steering group meeting: review of project findings and initiatives
R2	end June 2015	Final report submitted

3.2 Project implementation in practice

The overall programme of work commenced in July 2014 with a joint briefing for all Work Package contractors. Given common and/or interconnected features between Work Packages 5 & 6, these have been taken forward by the same team – WP5 lead by Nautilus Consultants, and WP6 lead by Hambrey Consulting.

Table 6 presents the schedule of planning meetings held with programme managers, a process that has effectively replaced the study guidance that the steering groups were originally designed to provide.

Table 6 – Schedule of study progress and coordination meetings / conference calls

Briefing	17 th July 2014	meeting of all WP contractors and programme managers, and introduction to IFG chairs / vice-chairs
Inception	24 th Sept 2014	meeting of all WP contractors and programme managers
Progress 1	19 th December 2015	conference call between WP5 & WP6 contractors (Crick Carleton & John Hambrey), programme managers (Mark James & John Thompson) and Nick Lake (Marine Scotland)
Progress 2	3 rd February 2015	meeting of all WP contractors and programme managers
Progress 3	16 th June 2015	meeting of all WP contractors and programme managers

This has particularly affected Milestones M3, 4 & 5 (see **Table 4**), which have been effectively internalised within the project – involving the contractor, programme facilitators, programme managers and Marine Scotland policy officers.

Industry engagement has been facilitated primarily through field work – as detailed in **Table 7** – supplemented by phone and email contact.

Table 7 – Schedule of field work and internal workshops

23 rd September 2014	project planning workshop
11 th October 2014	industry workshop, Portree, Skye
12 th -14 th October 2014	field work Moray coast ports and harbours
15 th October 2014	field work Ullapool
16 th October 2014	project planning workshop
3 rd -6 th November 2014	field work South Uist
	field work Isle of Skye
28 th November 2014	NW IFG meeting
9 th December 2014	Industry meeting, Sheildaig / Torridon
15 th December 2014 to 2 nd February 2015	1 st survey of supply chain associated with Isle of Skye fisheries
13 th -15 th January 2015	field work – distribution logistics Glasgow
15 th -17 th March 2015	team workshop
26 th April to 1 st May 2015	field work Isle of Skye
18 th May to 5 th June 2015	2 nd survey of supply chain and market demand associated with Isle of Skye fisheries
18 th May 2015	participation in Moray Firth Partnership meeting on marine spatial strategy
8 th -12 th June 2015	survey of potential market demand amongst Edinburgh caterers for fresh seafood from Skye

Desk research and planning were undertaken during August and September 2014, and field work from October onwards. More intensive case study field work and associated research was undertaken between February and May 2015.

Stakeholder engagement was managed through the good offices of the IFGs and the two project facilitators. Scoping was done through visits to the Western Isles, Skye, Torridon, Ullapool and the Moray coast where face to face interviews were conducted with various stakeholders. This was followed up with further interview programmes focused on Skye and Lochalsh and the inner Moray Firth. Three more focused pieces of research were conducted as part of the project – closer examination of Nephrops trawl and creel fishing systems and value chains associated with Skye and Lochalsh; profiling of available visitor accommodation and catering facilities in the Skye and Lochalsh area; and a phone survey of a sample of catering establishments (cafés, bistros, full service restaurants) in the centre of Edinburgh (EH1). A number of shellfish traders / transporters were also visited in the Glasgow and Inverness areas. The range of face to face and phone interviews conducted is indicated in **Table 8**.

3.3 Choice of case study area(s)

The scoping of possible case study areas was based on a number of selection criteria – primarily scale of under 10m fleet, scale of landings, the economic peripherality of the area, the geographic peripherality of the area, distance from main trunk roads. Such scoping was greatly assisted by our examination of available landings statistics, and division of the Scottish coastline into logistical hubs – essentially areas around a core distribution hub or gateway where landings are fed into that hub or gateway. These are illustrated in **Fig 4**.

Our interest focused on the west coast and islands, but with the idea of an east coast case study to provide balance. Key characteristics of the various areas were assessed as follows:

- Fish from the Western Isles tend to be fed through to mainland gateways of Oban, Uig and Ullapool. Nonetheless, the Western Isles is a significant inshore producer, and has

Table 8 – Mix and location of businesses and people interviewed as part of this study

	skippers / fishermen	shellfish traders	fish / shellfish transporters	food outlets / cafés / restaurants	hotels / guesthouses / B&Bs / hostels	tour operators	residents	visitors	harbour masters	fishery managers	
OH IFG	5	2									7
MF&NC IFG	5	4							1		10
NW IFG	15	5		12	5 (20)	2	8	10	1	1	79
SW IFG		2									2
OMG											0
EC IFG											0
Glasgow area			3								3
Edinburgh area				(20)							20
other		3	2								5
	25	16	5	32	25	2	8	10	2	1	126

Note: numbers in brackets refer to specific telephone surveys

expressed particular interest in these studies, and most particularly for WP6. Possible candidate.

- The Orkney Islands also feed product through to a mainland gateway in the form of Scrabster, but overall production from the inshore zone is limited. Not a candidate
- For the west coast areas, the logistical cells of Skye and Lochalsh, and Kintyre and islands were of particular interest, with substantial production from the inshore zone, and high economic and geographic peripherality. Possible candidates.
- The South West, North West and North East areas are lesser producers, with diverse types and locations of production, and high degrees of peripherality. These areas were considered more difficult to address in terms of case studies. Not candidates.
- Most of the east coast areas were discounted as they were not peripheral, were well served by large industrial scale hubs, and were close to main trunk routes. The inshore zone was also particularly narrow in this area, and production overly weighted towards Nephrops trawling. Not candidates.
- The Mull and Oban logistical cell was also of interest, but considered to be less peripheral than logistical cells to the immediate north and south. Not a candidate.
- The inner Moray Firth / Moray coast logistical cell was of some interest, since despite being well-served by a trunk road, its small-scale and economic peripherality seemed to disproportionately disadvantage it. Possible candidate.

Further examination of these possibilities took in the level of interest expressed by the local industry these work packages. On this basis it was decided that the main focus should be on high value / volume inshore production areas of Skye and Lochalsh and South Uist (with some additional inputs from research associated with the Ullapool and Torridon / Sheildaig areas), with a contrasting case study addressing more fragmented inshore conditions (and lower value / volume production) in the inner Moray Firth (Morayshire extending into the western part of Aberdeenshire). In the event it proved difficult to establish engagement with Moray Firth inshore interests (high levels of part-time fishermen, seasonal and itinerant small-vessel trawl fleet, and fragmented representation) – but that lessons drawn from conditions found on the west coast could, with some interpretation, be transferred to the Moray Firth.

On the above basis, the Skye and Lochalsh case study provides the test bed for identification and examination producer / market constraints. Work has demonstrated that the issues identified here are representative of problems faced by all other peripheral inshore fisheries and communities, and findings and proposed solutions can be readily transferred to most other areas of Scotland.

3.4 Some re-orientation of study outputs / outcomes

Overall, the trajectory of the project has differed significantly from that sign-posted at the outset of the project and incorporated in its design. The study terms of reference foresaw the development of a number of targeted solutions – improved access to market by fishermen grouping together; improvement in the value of first hand sales through more accurate advanced notice of catches and landings; and receipt of higher first hand prices as a result of more accurate information on ruling current prices. What on the face of it look like rational and relatively straightforward targets have, on more detailed examination, proved to be over-ambitious and an over-simplification of commercial realities. Though the underlying intentions have remained relevant, addressing these issues has been a little more complex.

Core assumptions expressed in the study brief / project design are that the inshore fishing sector could achieve higher first hand sale prices for landings through a combination of joint enterprise to increase bargaining power, and through more active involvement in product promotion and marketing (including better use of digital technology). Incentive towards such

development could be provided through more ready access to market prices for such product, and this in turn might encourage fishermen to catch and land a wider range of species than is currently the case.

Scoping of the issues using available quantitative and qualitative data suggested that these issues were not nearly so clear cut, and canvassing of the opinion of fishermen and traders during early field investigations failed to clearly establish that the assumptions underlying the study were considered core constraints by the industry. This presented something of a quandary for the consultants as there was a clear and evident rationale for the basis of investigation, but limited industry recognition of the problems as presented. This encouraged the consultants to go back to basics to confirm / re-establish the nature and scale of the problem(s) being investigated.

To assist in this process a typology of possible areas of investigation was developed, based on the original tenets of the study. These are shown on the left-hand side of the following tabulation:

	scale of potential
<ul style="list-style-type: none"> • logistics <ul style="list-style-type: none"> – coordinating catches / landings to generate scale across landing sites – holding over landings to capture higher price opportunities – rationalising transport logistics – improved coordination / fewer operators – promoting specialist local consolidators • information <ul style="list-style-type: none"> – signalling supply opportunities through website – signalling supply opportunities through social media – improved provision of market / price information • marketing & promotion <ul style="list-style-type: none"> – improved sustainability branding – promoting new dishes / products to local outlets – festivals – consolidation of supply – selling to local catering and hospitality outlets – Seafood trail 	<p>X</p> <p>XXXXX</p> <p>XX</p> <p>X</p> <p>X</p> <p>XXX</p> <p>XXXX</p> <p>X</p> <p>XXX</p> <p>XXXXX</p> <p>XXXX</p> <p>XXXXX</p>

Further field investigations showed some of these to be less of a problem, or to present less of an opportunity, than others (shown in last column), and the logic determining approach to, and points of, intervention rather more complex – and constrained – than originally perceived.

The conclusions drawn at this early stage in the study were that more needed to be known of the existing supply chain systems in play in any given area, and critically more needed to be known of the commercial and economic realities underpinning them. Further, that more needed to be known of why fishermen (and to a lesser degree traders) did not express the level of enthusiasm for the project that the underlying rationale for the study would have suggested.

This prompted more focused field work to:

- examine commercial realities / competition / viability of the trade
- build a profile of the case study areas

- identify / describe where existing solutions had been developed or how others were addressing issues, and
- exploring how issues could be addressed – exploiting opportunities / removing constraints

This work in turn pointed up that for many areas where stakeholders were looking for solutions:

- (i) thoughts were more of the “wishful thinking” variety and commercially impractical or unworkable;
- (ii) in reality, that many of the underlying problems were not as obvious as portrayed; and
- (iii) that to address these and other constraints in many cases others had already found and applied solutions – and thus there was not the need to re-invent solutions.

As a result of this assessment, study implementation was refocused away from developing new ways of doing things, and instead greater attention was given to describing examples where others had resolved identified issues:

- Local marketing / distribution
- Producer cooperation
- Promotion
- Market information.

As a result, rather more time has had to be spent identifying and qualifying the nature of supply-chain constraints than had originally been planned (essentially Phases 2 & 3), and this has been done by focusing in greater detail on one case study area (Skye and Lochalsh), albeit further informed by evidence from other areas (South Uist, Ullapool and surrounds, and the inner Moray Firth). A number of findings from this work have caused some reorientation of how the study objectives have been approached and delivered, which has also engendered some re-thinking about the nature of the problem(s) faced by the inshore sector – principally moving the point of focus from export and national distribution to more local systems and opportunities. These issues are addressed in greater detail in the **Chapters 4 & 5**.

4 Industry context / Scene setting

4.1 The core supply-side commercial structure of the Scottish industry

Scale

The conformation of the Scottish seafood industry is dominated by issues of scale and efficiency.

The broad commercial structure of the Scottish fishery sector divides fairly cleanly between industrial scale and small-scale. Industrial scale activities operate at volume, and tend to attract still further economies of scale through clustering. Thus the biggest scale fishing vessels tend to land to the largest ports, which in turn support port auctions, major transport hubs, and trading and processing clusters. Prime examples of this are the ports of Lerwick and Scalloway, Fraserburgh and Peterhead. Industrial scale landings are also made to other large gateway ports where this makes logistical sense; typically ports that do not support industrial clusters to the same extent – for example Kinlochbervie, Lochinver, Ullapool and Mallaig on the west coast, and Scrabster on the north coast.

As a general principle, the main markets for Scottish seafood are found outside Scotland – elsewhere in the UK, on the continent, and further afield. Accordingly, one way or another live, fresh, frozen and processed product is moved south through the two logistical pinch points of the Edinburgh and Glasgow areas, where key seafood transport hubs are located, and these in turn have also underpinned the formation of nearby processing clusters. The driving force behind the location of these various businesses is the achievement of economies scale.

For the inshore sector it is simply not possible to achieve the same parameters of scale as the industrial sector, but the same commercial forces are at play to encourage capture of economies of scale, and so landings are at a minimum concentrated around logistical hubs, and landings made to smaller harbours and landing places are collected at these same hubs for onward transport to market. But notably, relatively little processing is located at these logistical hubs. The main hubs are Kirkcudbright, Troon, West Loch Tarbert, Oban, Mallaig, Kyle of Lochalsh, Ullapool, Inverness, Buckie, Pittenweem and Eyemouth. On the Western Isles they are the ferry points – Stornoway, Tarbert, Loch Maddy, Lochboisdale, Barra.

Ports typically specialise around a particular fishery

Where such logistical hubs exist, at their core tends to be a particular fishery. Thus:

- Kirkcudbright is a scallop and queenie port – including processing;
- Troon a trawl caught Nephrops port;
- West Loch Tarbert handles live lobster and crab;
- Oban handles trawl caught Nephrops, plus dredged scallops and live crustaceans;
- Mallaig is another trawl caught Nephrops port;
- Kyle acts as a gateway for predominantly live shellfish;
- Oban, Uig (on Skye) and Ullapool also act as gateways for product shipped from the Western Isles;
- the Inverness area acts as a transport hub for product from the Highlands and islands, as does Fort William to a lesser degree.
- Kirkwall and Stromness handle predominantly live lobster and crab, and include crab processing;

- Fraserburgh and Peterhead are industrial scale whitefish and small pelagic fish ports, but also handle most of the trawl caught Nephrops from the large Fladden grounds (located offshore to the north east of the mouth of the Moray Firth);
- Pittenweem is the main landing port for trawl caught Nephrops from the Firth of Forth;
- Eyemouth fulfils the same role, but for the fisheries to the south of the Firth of Forth, and includes Nephrops and crab processing;

Parts of small-scale fisheries operated at scale

There are three shellfish fisheries normally considered small-scale which have a component that presents industrial scale characteristics – dredged scallops, trawl caught Nephrops, and industrial scale “vivier” (crab) operations.

- Large scale dredging for king scallops involves large, so-called “nomadic”, vessels that shift from fishery to fishery to make maximum use of harvesting opportunities. These vessels tend to be owned by a small number of businesses, and linked to a still smaller number of scallop processing companies. These vessels land to wherever it is most convenient, where catches are transferred to lorries and shipped to the main processing plants – mainly in the UK, but also sometimes on the continent. This part of the industry operates at a quite different scale to the smaller coastal scallop dredgers. In Scotland, Kirkcudbright, Fraserburgh and Peterhead are the main scallop centres.
- Scotland’s fisheries produce the largest volume of Nephrops of any country where Nephrops can be fished. Most Nephrops are harvested by trawl from relatively shallow flat bottomed grounds of sand and mud substrate. Vessels used to exploit this fishery tend to be towards the end of their commercial life, and can range in size from as little as 8m to some 20m, though most are in the range 10m to 15m in length. For trawl caught Nephrops, the product is shipped and sold fresh, not live. Whole large and undamaged Nephrops are shipped chilled or frozen to largely continental markets, though a portion is channelled to the UK catering and retail trades. For the rest – smaller specimens, and damaged larger specimens – the head is removed and discarded, and the shell-on tail shipped to scampi processors. Here the tails are cooked, the tail meat removed from the shell, and this is used as the raw material for production of breaded scampi. This is an almost exclusively UK product, and production takes place in a small number of UK processing plants – located in Scotland, Northern Ireland and northern England. Nephrops trawlers can be operated from a wide range of ports and harbours and landing places, and though many choose to operate from the prawn trawler cluster ports, as much as half the fleet operates from ports supporting fewer than a handful of boats. From here product is collected by intermediary traders who sell on to the main processors. Competition for product is fierce, and allegiances tend to be fickle and price sensitive.
- Most potting for crab is undertaken by relatively small inshore boats in the range 6m to 12m in length, fishing several hundred pots each. But there is another class of industrial scale vessels – the “vivier” fleet – that are nomadic, fish two or three thousand pots, and stay at sea for a matter of weeks at a time, holding live product in onboard seawater wells or “viviers”. Within the region these vessels operate to the west, north and east of Scotland as opportunities dictate, and ship product through a small number of large UK based crab trading and processing companies. The processing part of the industry is particularly concentrated. High quality live product is shipped to France, Spain, Portugal and Italy, whilst poorer quality crab, and crab caught during supply gluts, is bought by the processing companies for freezing for later processing. In Scotland, such landings tend to be made to the larger ports, where product is transferred to lorries and shipped to holding and processing facilities elsewhere in the UK.

Small-scale fisheries

Much of the Nephrops trawl fishery takes place within the inshore zone, and product is moved along a specialist and essentially industrial scale supply chain – regardless that a fair proportion of landings are small in scale, and to small isolated harbours and landings places. For the other inshore fisheries, however, the supply chain structures are highly distributed and not of the same industrial scale, though they are highly organised.

After trawl caught Nephrops, the next highest value item from the inshore zone is creel caught Nephrops. This is shipped live to markets in France, Spain, Portugal and Italy using specialist “vivier” trucks. A range of business models are in use within this specialist trade, with the key differences being variation in where along the supply chain ownership of the product is transferred, and whether independent or trader-owned “vivier” lorries are used.

The next highest value item is lobster. Again, these are traded live, but the market is much more widely dispersed – across the UK and across Western Europe – and the distribution systems typically involving smaller unit volumes. Product can be shipped in the long-distance “vivier” lorries alongside the live Nephrops, but they are also shipped using a range of smaller vehicles. Lobsters are less fragile than live Nephrops, and travel better. They can be held over in live tanks for longer than Nephrops, but under such circumstances maintenance of water quality remains a critical risk.

The next highest value item is king scallops dredge-harvested from the inshore zone. A fair proportion of these go to the larger scallop processors, but much also goes to smaller local processors, and it is this product that tends to be sold more locally – to caterers in the area of production, within Scotland, and within the UK.

Next in value is brown crab. This is a low value high volume item. The primary market for live crab is France, followed by Spain and Portugal. Product is shipped in bulk to these markets in “vivier” lorries. In this trade, Scottish product has to compete with substantial supplies from Brittany, from the Channel Islands, and from the fisheries of the Western Approaches and the southern North Sea. This is a challenging market – and participation is not helped by the fact that production enters glut conditions over the summer months each year as fair weather fishermen and hobby fishermen boost supplies, and prices plummet. It is under these glut conditions that the large crab processors buy up and freeze product for later processing. Live brown crab is generally handled alongside the trade in lobster and live Nephrops. This said, for many creel fishermen brown crab is viewed as a necessary bycatch and adjunct to the more valuable and profitable lobster fishing. Whilst it may not be hugely profitable for many fishermen, it does however contribute substantially to covering operating overheads – i.e. without it, many creel fishing businesses would flounder.

Velvet crab creeling is a valuable fourth quarter fishery for a relatively small proportion of the creel fleet – usually smaller boats exploiting locally defined concentrations of this species (South Uist, Iona / Ross of Mull, Orkney, etc.). These crab are shipped live to Spain, and to a lesser extent to France, Portugal and Italy, and are particularly prized in the run-up to Christmas. Live product is shipped with the “viviers”, but is fragile and requires careful handling in order to minimise in-transit mortality levels.

Other sizeable inshore fisheries include for queen scallops (specialist), dive harvested king scallops (specialist small volume distribution), cockles (a short-season fishery, feeding a specialist processing sector), and whelks (a specialist boom and bust fishery mainly supplying product to a South Korean market). More minor fisheries include hand-gathered periwinkles, shrimp (*Palaemon serratus*), squid (inshore trawling for small squid, and jigging for larger squid), and line fisheries from mackerel, haddock, pollack and various other finfish.

Simplified characterisation of the inshore sector

Building on the examination of the relevant data sets and information gathered during field interviews, the following presents a simplified view of the core characteristics of the inshore fishing sector.

- Scale of activity of fleet segments
 - Full-time mobile (trawl / dredge) – >150 days per year
 - Full-time static – >150 days per year
 - Seasonal static – >100 days per year (normally summer)
 - Part-time static – short bursts of activity – normally associated with offshore employment, or compatible shift-pattern
- Typology of small-scale industry ports and harbours
 - Large regional hub port – Oban, Stornoway, Fraserburgh, Pittenweem
 - Established fishing harbour / landing place – Kyle, Kallin, Burghead, Ullapool
 - Small, isolated harbour / landing place – Uig, Elgol, Helmedale
 - Recreational harbour / marina – Lossiemouth, Gardenstown
- Core characteristics of fleet activity
 - Small-scale
 - Landings to small ports, harbours, landing places
 - Tend to work relatively small fishing area
 - Tend to work static gear
 - Geographically peripheral
 - Weather dependent
 - Cannot always be relied on for supplies – if one not fishing, most are not fishing
 - One skipper / owner; one or two crew
 - Tend to be hand-to-mouth – financially fragile
 - Low capital invested – low capital reserves
 - Time poor; limited shore support infrastructure
 - For bulk landings can sell into well-established national distribution systems
 - For incidental landings / bycatch, either piggy-back on bulk sales, or accept price penalty from traders handling bulk quantities of the same species
 - There is the opportunity to access local short-chain markets, but this requires more effort, and cannot sell all landings this way
 - Can access established hierarchy of traders – make own arrangements / work through agent; local consolidator; national wholesaler; port market; direct to exporter; direct to processor.

4.2 Supply-side systems, using the example of Skye and Lochalsh

Production

The inshore fisheries of the area are illustrated in **Fig 9**, taken from the Marine Scotland ScotMAP project, a best-estimate “heatmap” of the value of catches. The main fishing ports / landing places of the region are – Mallaig (traditionally a large boat harbour), Kyle and Portree, followed by Broadford, Elgol, and Shildaig. The nearest ports on the Western Isles are Kallin on North Uist, and Tarbert on Harris.

Fishing is dominated by a mix of under-10m creel and trawl vessels and a smaller number of larger trawl and dredge vessels. The most valuable fisheries target Nephrops (*Nephrops norvegicus*) using creel and trawl. Others focus on creel caught lobster, brown crab and velvet crab – with occasional bycatch of squat lobsters. Lesser fisheries include dredging for scallops and diving for scallops. Whilst there are modest resources of finfish in the surrounding waters there is a noticeable absence of fishing activity that targets these species. There is some finfish bycatch from Nephrops trawling, and boats occasionally line fish for mackerel, pollack, haddock and squid. Other small scale activities include hand-gathering of periwinkles, and periodic exploitation of whelks.

Depending on what discard plan is drawn up for the North West of Scotland, there may be an obligation on the Nephrops trawlers to land bycatch of quota species – which at the very least is likely to result in raised local landings of haddock.

The area incorporates distribution routes from the inshore fisheries to the north and south of the Kyle of Lochalsh along routes through Kyle and Mallaig to Fort William (and potentially south to Glasgow via the A82) and the road running along the shore of Loch Ness, the A82 (south to Fort William and north to Inverness and connections to the A9). Uig, located in the north east of Skye, hosts a ferry terminal receiving traffic from Harris and North Uist on the Western Isles. Armadale, located on the south west of Skye hosts a ferry link with Mallaig.

The Skye and Lochalsh economy, like so many parts of the Scottish Highlands, is very dependent on tourism – including disproportionate location of second homes (and retirees) within the area. The big constraint, however, is that the tourism season is highly seasonal, running from mid-May through to mid-September (little more than four months), with very little activity outside this period (minor peaks around Christmas and New Year, and Easter). So outside tourism, the economy rests primarily on its natural resource base (farming, fishing and forestry), on the normal public sector trappings of society (health, education and civil administration), and mixed private sector services (related to retail / wholesale, transport, and construction).

The local seafood industry can be characterised as comprising five tiers of activity, each with a lower economic value to the one above it. Overall, the industry is heavily oriented towards exports – primarily of live shellfish to France, Spain and Italy, with a particular focus on live Nephrops. A second tier of activity is the distribution of whole and tailed fresh Nephrops and other shellfish to UK-based processors. A third tier is the supply of fresh product to the catering industry in the UK’s main conurbations. A fourth tier is the supply of local produce to local caterers and householders, and a fifth tier is the supply of seafood to local caterers and householders sourced from outside the area. Very little processing of product is undertaken within the area, though a fair amount of added value activity is undertaken around maintaining the freshness of product (including keeping live product alive) and maintaining such freshness along the distribution chain (chilled and live).

Fig 9 – Indicative value of catches originating from inshore (<10m) fishing activity – from the Marine Scotland ScotMAP project

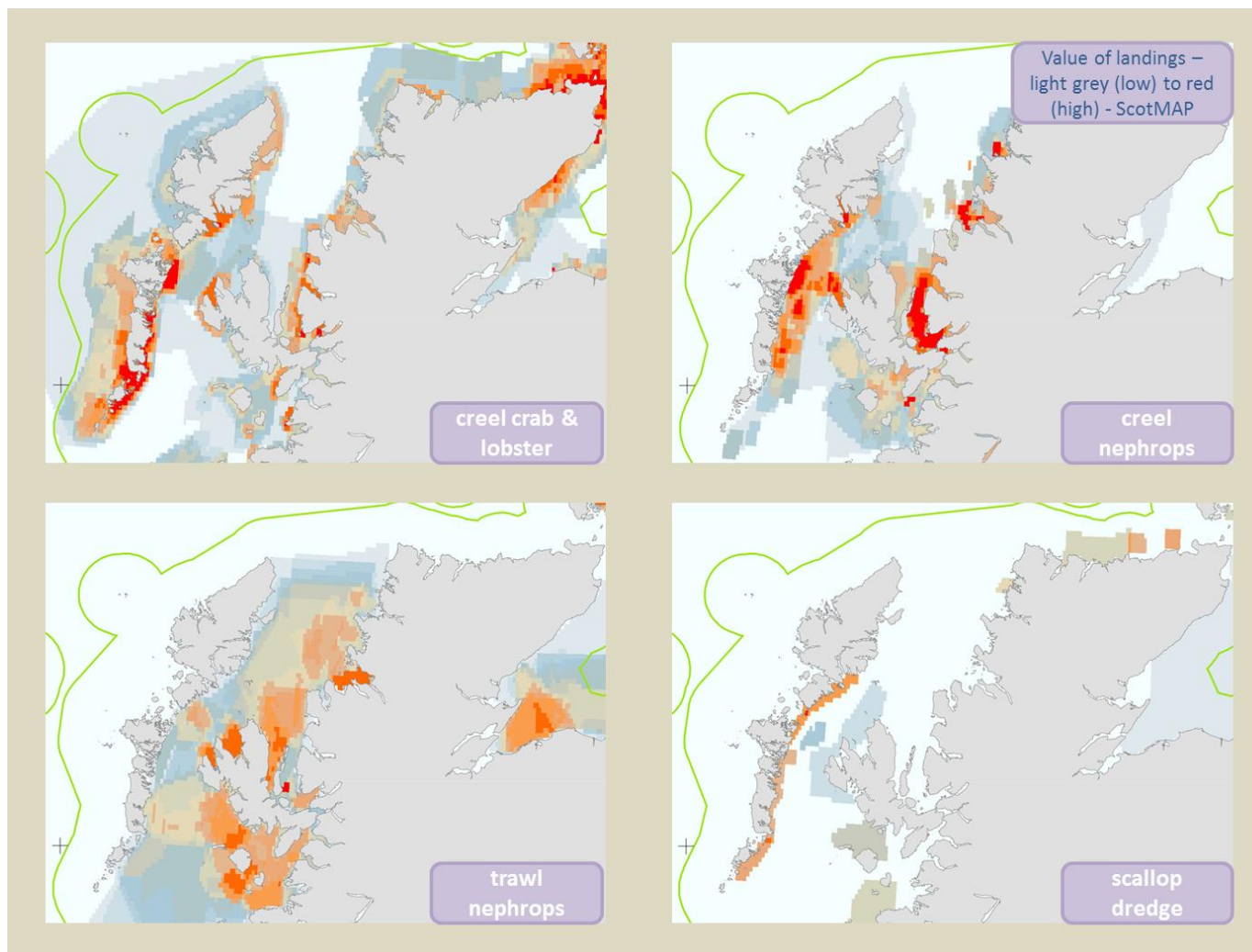
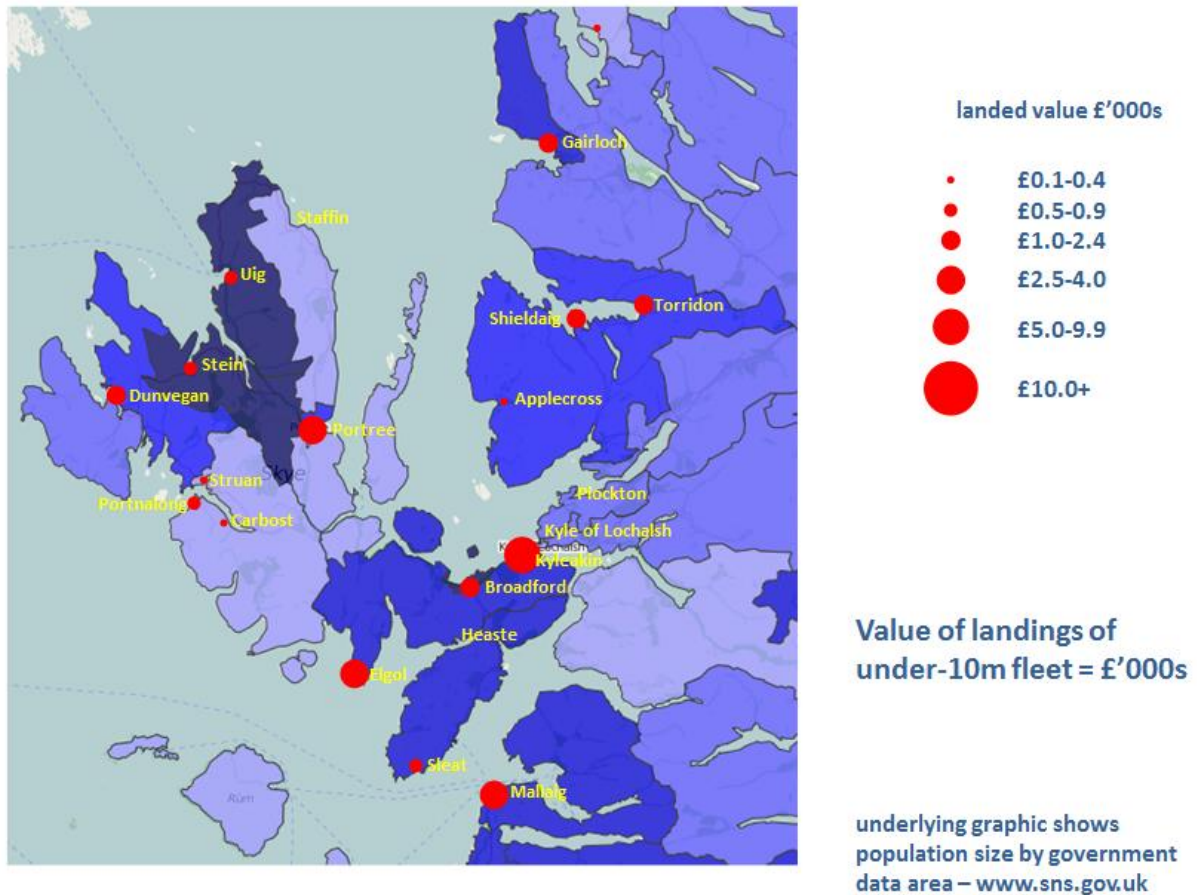


Fig 10 – Graphic illustrating value of landings to Skye and Lochalsh area, 2012



The fisheries of the Skye and Lochalsh area are dominated by shellfish creel fishing – which is practiced from small harbours and landing places across the area. The most valuable catches are of Nephrops and lobsters, followed by brown crab, and a seasonal fishery for velvet crabs. A particularly productive Nephrops fishery takes place in and around Broadford Bay, where for all or part of the year mobile fishing is banned. At the centre of this management area is a no-go military testing range. Creel caught shellfish landings are concentrated around Kyle and Kyleakin, Elgol and Portree, and Dunvegan.

In addition to these creel fisheries there is, with a particular concentration to the south and west of the Isle of Skye, a trawl fishery for Nephrops, with landings made primarily to the port of Mallaig, but also to small landings places on Skye, at for example Kyle and Kyleakin, Elgol and Uig. Some of these boats are based at Mallaig and some on the Western Isles; others are visitor boats that shift to the area on a seasonal basis.

Almost no fish are commercially harvested for human consumption, though they are present; fish are harvested, however, to provide bait for the creel fisheries.

In addition to local production, product from the Western Isles is shipped via the port of Uig which is the eastern end of daily ferry sailings from Loch Maddy in North Uist, and Tarbert on Harris. Trawl and creel caught shellfish is transported to market along this route, as is dredge caught scallop, and various processed seafood products including retail packed product.

Little of the catches from this area are consumed within the area, but rather distributed to markets elsewhere in the UK and on the continent. Creel caught Nephrops are mainly exported live to France, Spain, Portugal and Italy. Trawl caught pawns are transported to

breaded scampi processors, with the subsequent retail and catering products distributed to outlets across the UK. Whole trawl caught Nephrops are distributed fresh or frozen to western European markets, as well as to UK caterers. Live lobsters are distributed across the UK and further afield. Live brown crab are exported to the continent, and also to UK processors. Velvet crabs are exported to Spain. Dredged scallops are transported to scallop processors; dive caught scallops are distributed to high-end restaurants – locally, across Scotland, and further south.

Trade arrangements

Core systems: The port of Mallaig acts at an industrial scale, though throughput to this port is much reduced from its heyday of thirty or more years ago. The port supports a daily evening auction – primarily geared to the Nephrops trawl fishery. A number of national fish traders are represented at the market, as well as smaller local traders.

For the rest, vessels establish standing arrangements with traders for the sale of their product, and the traders arrange to pick product up from landing places. The transport system is thus arranged like the branches of a tree, with small vans used to pick-up product from the small harbours and landing places transferring their loads to bigger vans at a local depot, and then onwards for transfer to larger lorries. This is relatively straightforward for trawled product, where product simply needs to be kept chilled – i.e. in ice, and then in chill storage. This is a more complicated process for live product.

Lobster and crab are generally held in “keeps” at sea, where animals can be comfortably kept alive for a week. Live Nephrops and velvets are more fragile. For the Nephrops, on removal from the creels animals are “tubed” (inserted lengthways in individual cells in boxes holding between 60 and 126 animals) in standard sized crates, which are then stored onboard in chilled seawater, dropping temperatures to 3 to 5°C. These chilled live Nephrops are then picked up for transport to holding facilities before shipment to market. These holding facilities can be in bespoke tanks, or held in the “vivier” lorries that will take them onto the continent. Similar procedures are used for velvets.

With live product, the price paid for product depends on its quality – part of which relates to whether or not it is still alive when it reaches market. This in turn relates to how it has been handled during capture, holding, landing to shore, and during the various sections of its transport to market. Coping with, and compensating for, in-transit mortalities is a normal part of this business, but can also be a significant bone of contention where high levels of mortality are declared by the ultimate buyer without independent confirmation. Exactly when and where ownership of product, and therefore responsibility for looking after the product, takes place in the transportation process becomes a major consideration. It is reasonable that fishermen will try and transfer this obligation at first hand sale, and that likewise it is logical that the ultimate buyer will seek to only buy product on delivery. Between these two extremes many trade variants are in place. Just how a business manages the risks attaching to any particular business model becomes critical in this business, and many Scottish businesses have suffered temporary or permanent set-backs where things have gone awry.

Trawl caught Nephrops: In the Skye and Lochalsh area, the simplest trade is that for trawl caught Nephrops. Intermediary traders compete for the purchase of product, and will then arrange to pick up product – typically on a daily basis. Product is transferred to a depot where it is re-graded and sold on to processors. Some traders are also processors, and some traders also sell-on product on their own behalf – for example fresh and frozen whole Nephrops. A handful of traders engage in this business in respect of landings to Skye and Kyle, consolidating product at mini-hubs (car-parks) at Broadford or Kyle before transporting product on to bigger depots elsewhere in Scotland.

It is also possible to separate out the most lively Nephrops from the trawl catch for sale as trawl caught live. This is not common, but under certain market conditions can prove profitable. It should be noted that under normal conditions trawl caught Nephrops are dipped in sodium bisulphate as a means of preventing / delaying the development of discoloration due to black spot / melanosis – the chemical blocks the action of a naturally occurring spoilage enzyme that causes the development of melanosis (substitution of black for the normal pink coloration) in cells under the shell of Nephrops. Live Nephrops would need to be separated out before this dipping process takes place.

Key Nephrops traders / processors include Laeso (Peterhead), Macduff Shellfish (Peterhead), Youngs (Annan), Associated Seafoods (Buckie), Whitelinks (Fraserburgh), Scotprime Seafoods (Ayr), Whitby Seafoods (Newton Stewart), Border Laird (Amble), Middleton Seafoods (Kilkeel), Fastnet Highlands (Fort William).

Creel caught Nephrops: For creel caught Nephrops, fishermen have a number of trading options open to them. At the core of this business is the transport system involving “vivier” lorries. Such lorries are either for hire – i.e. they simply provide a transport service to traders – or they are owned and operated by a live shellfish trading company. Their operation takes a number of different forms:

- Thus, some individuals in Scotland own one or two “vivier” lorries and their services are offered to the market.
- There are other companies – general transport companies, specialist seafood transporters, or specialist live shellfish companies – that own fleets of “vivier” lorries. These companies tend to be large and multinational, with bases or depots in key transport hubs. In the live shellfish business, key hubs are associated with Glasgow (Bellshill and Larkhall) and the south coast of England (close to ferry services to France and Spain).
- Then there are shellfish or live shellfish trading companies that own their own fleets of “vivier” lorries. These include Scottish and English companies (some of which are Spanish owned), and companies based in France, Spain and Italy.

[Of note, some systems involve the transfer of product from one “vivier” to another – for example at south coast ports prior to the ferry journey south – i.e. another driver / transporter takes over the second half of the journey (yet another risk).]

There are some traders with holding facilities on or near Skye, and these can take product from a number of boats for on-sale to other traders. Such companies are Swift Offshore of Broadford, Mackinnon of Elgol, Scotwest at Kyle, and MacKerlich Seafood by Kyle. Other local live shellfish companies are Celtic Shellfish of Broadford and Isle of Skye Shellfish of Dunvegan, but the current status of these latter businesses is unclear.

Further afield, the key companies are Keltic Seafoods (Dingwall), Tarbert Shellfish (Tarbert) (now in liquidation), D R Collins (Eyemouth). A new company, Loch Fyne Langoustine (Tarbert), has recently established.

“Vivier” transport companies include PDK (Oban), Angelbond (Glasgow), MacNeil Shellfish (Glasgow), DFDS (Glasgow), Imex (Knaresborough), Sutherland Shellfish (Lairg), and J&D Cowper (Evanton).

Creel caught lobster, brown crab and velvet crab: These tend to be shipped alongside live Nephrops, but are also traded along separate supply chains. Thus many of the live shellfish traders involved in Nephrops will also handle lobster and crab. In addition, however, there are those that specialise in handling, for example, lobster, distributing / shipping direct to caterers across the UK. Likewise for brown crab – most product is shipped live to the continent, but during glut production conditions (mainly across summer months) product is

sold to specialist UK crab processors. The main such processors are Burgons of Eyemouth, the Orkney Fishermen's Society, and Westray Processors of Orkney.

Supply of bivalve molluscs: Sconser Scallops, based by the Sound of Raasay half way between Broadford and Portree, dive harvests scallops. These are then supplied to top-end restaurants – locally and across Scotland, plus to selected restaurants in, for example, London. Oysters are cultivated by Carbost on the western side of Skye, and also supplied to top-end restaurants – locally and further afield. Similarly, rope-grown mussels are cultivated on at least two sites on the western side of Skye. These too tend to be distributed to caterers locally and elsewhere in Scotland.

Supplies to the local catering, retailers and consumers: Local product is also supplied to local caterers, retailers and householders. Most fishing vessels have supply arrangements with local caterers and householders, providing a variety of species against orders. Quantities involved tend to be small but regular. In addition, two local companies buy and distribute local produce. These are Just Hooked in Portree, and Andy Race Fish Merchants in Mallaig. Both businesses distribute widely in the area, operate one local fishmonger each, and support mail order deliveries. For reference, the area is well-served by courier companies able to distribute nationally and internationally on a secure, dependable daily basis.

4.3 Demand-side structure of seafood deliveries – Skye and Lochalsh

Core demographics: The Skye and Lochalsh area is a sparsely populated and hilly / mountainous area of the Highlands of Scotland, with a heavily indented and rocky coastline. Both Mallaig and Kyle of Lochalsh are served by a daily railway service, and relatively basic road routes – a route along the side of Loch Ness running between Inverness and Fort William, with spurs to Mallaig and to the Skye Bridge. Feeder roads on Skye and the nearby mainland are even more basic, and many are single track.

This area (coastal postal areas only) runs from Loch Torridon in the North down to the Ardnamurchan Peninsula to the south, and the whole of the Isle of Skye. The main settlements in the area are Portree (2,410), Mallaig (780), Broadford (760), and Kyle of Lochalsh (650). The total resident population for the area of the case study is about 17,000. Population density is 25 per square kilometre (sparse). With an average household size of about 2.5 this gives the number of residential households at 6,800.

The nearest sizeable conurbations are Fort William (10,450) and Oban (8,540), Inverness (46,870) and Perth (47,180), with links through to towns to the east (Morayshire and Aberdeenshire) and to the Scottish Central Belt (Glasgow to Edinburgh).

The area is a very popular recreational and tourism destination, and between a quarter and a third of dwellings are considered to be second homes and/or available for rental as holiday accommodation, or are used to provide bed and breakfast or guest house accommodation. It is considered that over the tourism season – Whitsun bank holiday to August Bank Holiday – the local population can double.

A crude survey of accommodation and eateries on Skye and Kyle and nearby settlements yields the following numbers and composition, as shown in **Table 9**, and eating places as shown in **Table 10**. The survey is not exhaustive and so a 25% margin has been added to these figures to compensate for under-recording.

Table 9 – estimates of accommodation in the area of Skye and Lochalsh

	Counted	Counted +25%
Hotels & Inns	49	61
Guest Houses – B&Bs	294	367
Self-catering	319	399
Hostels & Bunkhouses	28	35
Caravans / Camping	17	21
Total	707	883

Table 10 – estimates of the number and composition of eateries in the area of Skye and Lochalsh

	Counted	Counted +25%
Award-winning restaurants	7	9
Restaurants serving regular food	44	55
Bars / Pubs serving food	19	24
Cafés serving food	22	27
Takeaways / Fish & Chips	7	9
Others (Indian, Chinese...)	3	4
Total	102	128

Taking an estimate of average occupancy per location per of 3 per night over a season of 4 months – 120 days – this indicates some 2,400 overnight visitors. At two thirds occupancy, this yields a conservative number of visitor nights of a little over 200,000 per summer season. All of these will be seeking to access food either to self-cater (i.e. purchasing from shops) or to eat out.

Whilst there is a dramatic scaling down in visitor numbers outside the main tourism season, there are still plenty of hill walkers and others participating in outdoor pursuits, as well as seasonal visitors for the winter and Easter holidays.

Sources of seafood to caterers and households: As indicated in the supply-side section, most fishing vessels in the area do provide some seafood to local outlets, but in the overall scheme of things it tends to be small in quantity. Two local seafood distributors – Just Hooked in Portree, and Andy Race Fish Merchants in Mallaig – distribute a range of locally sourced and brought-in seafood to local caterers and households, but overall they are not the main seafood suppliers to the area.

Most seafood consumed in the area is brought into the area from outside. Furthermore, in general, more finfish is consumed than shellfish. Fresh whole and filleted fish, and fresh and frozen processed seafood products, are brought into the area from the North East fishing industry and processors (Aberdeen, Peterhead, Fraserburgh, Buckie, Portsoy), and mainly by the main catering wholesale distributors who supply a wide range of dry, frozen and fresh goods to caterers and retailers. Examples of such distributors, all of which have national networks, are Woodward (includes M&J Seafood), Williamson, 3663, Brake Brothers – all of which operate locally from depots in and around Inverness. These can deliver products ranging from boxes of fresh fillets to trays of “chipped” chilled or frozen pre-prepared portion controlled dishes (the chip refers to a computer chip that accompanies each tray, so that all a cook needs to do is insert the chip into the control slot of the catering oven, put the tray in the oven, and press start – the electronic instructions encoded on the chip ensure the tray of dishes is cooked to perfection).

More specialist seafood distributors also provide a range of live and fresh product. Local examples of these are MacKerlich Seafood (Kyle), Coast and Glen (Inverness), Sutherland Shellfish and Game (Lairg), and Ochil Foods (Auchterarder). Plus live mussels and oysters,

and dive caught scallops, are supplied by local growers and dive companies, or from similar sources from along the west coast of Scotland.

Product is also shipped to the area from the Western Isles, and some of this is part or full processed. One such source of product is Kallin Shellfish, which ships its product via Uig for distribution across the UK, but which also supplies locally via Just Hooked (and separately its retail packed products are sold through the Cooperative supermarkets in Broadford and Portree, supplied via the Coops' central distribution depots).

A final tier of supply is provided by fish vans. A number visit the area as a part of their regular circuit of towns across the region. These typically source their supplies from wholesalers along the Moray Coast or the Broch, and make scheduled stops to most major settlements, as well as delivering to some caterers.

Overall there is a very well developed and diverse network of seafood supply to the region, able to provide most types of seafood at a scale appropriate to the different types of buyer – except that the network for distribution of locally caught product seems to be far less developed. At the one end of the local supply structure, the supply systems are informal and rely on local knowledge and contacts, but at the other extreme, it is too much hassle for fishermen to make small deliveries of product to local outlets when these local outlets cannot absorb all that they catch, and they take or would take very little outside the main tourism season. From the fisherman's perspective, supplying to the local market does not often make commercial sense – which is why they sell to local and national traders and wholesalers. And in the case of Just Hooked and Andy Race Fish Merchants, these businesses are not able to buy product from more than a few preferred vessels.

4.4 Industry dynamics – trends and changes

In debating issues relating to the fishery sector as a whole, and to the Scottish inshore sector in particular, there is often the underlying presumption that the sector is a bit behind the times, slow to change, and more focused on complaining about the current state of affairs than seeking to match and outdo competing businesses – whether in the UK or further afield. The evidence, however, is quite the opposite, with many examples showing active (and passive) responses to changed economics, markets and technologies. The following are indicative of the underlying dynamism of this industry.

In relation to Skye and Lochalsh area there is regular change in the composition of the fleet, both as owners / skippers take advantage of opportunities to embrace new technologies, capture efficiencies, or extend their scale of operation by changing or adding a vessel, and as they are forced to cut back due to changed economic circumstances – a poor trading year or a significant default on payment against product supplied. This is an economically fragile part of the industry, exacerbated by operation in economically and geographically peripheral circumstances. There are a number of examples in recent years where owners have upgraded their vessels, or added a vessel. And a few cases where vessels have had to be sold. Vessel owners do all they can to manage and ideally reduce / spread the risks that they and their businesses are subject to. A position of no change is not an option.

The same applies along the supply chain. Twenty years ago the conformation of the Nephrops trade in the Skye and Lochalsh area was very different, with MBBS of Broadford a significant player in the air freighting of live Nephrops to southern European markets, and with what turned into a series of significant traders / processors of trawl caught Nephrops located at Kyle. Today none of these companies are to be found on the landscape. Even before the recent recession, improvements in the technologies and equipment associated with "vivier" lorry transportation of live shellfish to southern Europe made most air freight uncompetitive. In the trawl caught Nephrops trade, at least two waves of consolidation took place across the 1990s and 2000s, during which many well established names disappeared,

and a few big players emerged. The last ten years has seen some major readjustments in the scampi processing sector, as the big processing companies have sought to capture still greater efficiency through scale and stream-lining of logistics – in some cases resulting in locally significant closure / relocation of premises. These adjustments continue.

The live prawn business is a particularly dynamic sub-sector of the industry. Scotwest at Kyle is the current form of a line of scampi trading and processing businesses. Formerly Amazon Seafoods, it re-emerged as ScotWest, and latterly this has been taken over by two Spanish companies, Marescot and Seascot (a successor of the MBBS business), one of which has more recently withdrawn from the partnership.

Celtic Shellfish, a live shellfish exporter based at Broadford and owned by Isle of Man interests appears to have recently experienced trading difficulties and is not currently operating. Isle of Skye Shellfish, based at Dunvegan, appears to have also experienced trading difficulties, and its current status is unclear.

Tarbert Shellfish, a significant player in the live shellfish market and based at West Loch Tarbert, has recently elected to cease trading and is in liquidation. Another but unrelated business, Loch Fyne Langoustine, has recently started up at West Loch Tarbert.

There used to be a fish smokehouse at Broadford – the Isle of Skye Smokehouse. This closed (the business was owned by the Crannog Restaurant, Fort William, which continues going from strength to strength). The site of the smokehouse is now the base of Celtic Shellfish (see above).

There used to be a fishmonger at the end of the pier at Portree called Anchor Seafoods. This closed a year or so ago, but the premises have recently been acquired by Just Hooked, the seafood wholesale and retail business based in Portree.

A long-standing oyster growing business at Carbost on the western side of Skye suffered a major downturn in 2013 when it lost a major part of its stock due to disease. It has now recovered from this, but the business has been diversified to also now include a farm shop offering a wide range of seafood produce, including oysters, plus a catering van and picnic area offering simple cooked fresh seafood, from lobster and Nephrops, to mussels and scallops.

The long-established Kallin Fishermen's Cooperative based at North Uist has operated live storage of crab, lobster and langoustine at its substantial seawater facilities at Kallin Harbour. This has recently been wound up, and the facilities sold on.

5 Producer / market linkages and constraint identification

5.1 Implications arising from case study and data analysis

Facilitating supply of local catches to local markets

Two particular findings stick out from field investigations:

- systems for making locally produced seafood available for consumption within the immediate area of production are weak; and
- residents and visitors to Scotland's coastal areas have a reasonable expectation of access to fresh, high quality, locally produced seafood, but all too often struggle to access such seafood, and where and when they are able to do so through local restaurants, pubs and cafés are underwhelmed by what is offered.

Such findings are not universal, and there are many places that make a feature of serving high quality seafood dishes. But there are many other establishments that overplay the British staple of “fish and chips” – when their customers are looking for more. The logistics of ensuring that fresh produce is available when café / restaurant goers want it is not always easy, and the prices that people are prepared to pay can also be an issue. But the demographics of visitors to the coastal areas of Scotland suggests that there are plenty that are used to eating simply prepared high quality fish and shellfish, and are prepared to pay not only for the food, but for the experience, and for the fact that the food is sourced locally. There is a significant under-exploited opportunity here. These issues are illustrated in **Table 11**.

On the downside, even with the best will in the world local markets can only absorb a small proportion of the product that is caught and landed locally. Selling locally is not the answer to the problems of peripheral small-scale fishermen – fishermen will still need to move most of their production through supply chains that end up outside Scotland. But selling locally can certainly make a bigger contribution to income than at present. But even then, the key feature of demand is that it is invariably linked to the tourism season – which in most of Scotland tends to be a short few months across summer. Outside of this season any systems established to meet the summer trade are likely to be more difficult to operate.

Overall it is concluded from sector profiling and case study work that further investigation and development work should mainly focus on addressing improvements to the very local production and distribution issues – though some examination of mitigation strategies to reduce risk in the live export business is also proposed (see next section).

Focusing on these short-chain distribution systems – where locally caught seafood might be distributed to local markets (nearby and within the regions of Scotland) – the following summaries (**Table 12**) seek to capture the range of constraints that affect the core elements of the supply chain – fishermen, consumers, caterers, intermediaries. This is based on the output of field work and data analysis undertaken during the study, and provides a coherent basis for discussion of how and where intervention might be most productive at this very local level.

Table 11 – Meeting local demand – bridging the gap

- In Skye and Lochalsh there are over 400 establishments offering overnight accommodation, and over 400 offering self-catering lets; across the tourism season this presents opportunities to feed something in the order of 4,000 people per mealtime each and every day; at present the food offer in the area only provides a very small proportion of these the opportunity to sample locally caught seafood
- It is not currently possible to source the ingredients of a seafood platter from within the area – because little finfish is landed to the area (the fish is there, the logistics are just not good), and there is no local smoke house (a great opportunity – requires an enthusiastic entrepreneur, offers great branding opportunities, and provides stable secure employment for small number of staff)
- Most caterers in the area and visitors to the area have a limited picture and understanding of the local fishing and seafood industry, and as such do not have access to the most basic of information that would allow them to make a reasoned and informed decision on what local seafood to offer / eat, and where to get it from
- By the same logic, a more coordinated approach is required to meeting local demand, and only then will it be possible to support a “buy local” / “buy local seafood” campaign
- It makes sense to provide visitors with the sort of eating experience that they are looking for; at present there seems little attempt by most businesses to examine what their customers want, and to build their offer around this – a key dimension of this is that many visitors come from northern and southern Europe where they are used to eating simple, high quality seafood; in all too many establishments the seafood on offer falls far short of their expectations
- Very limited use of websites, social media, etc.; seafood is regularly used as a quality marque when promoting local tourism – makes good copy, and good photos – but involvement of production sector almost invisible
- Next to no use of mail order, despite well-developed courier delivery services
- Whilst many visitors and locals are price conscious when choosing where and what to eat, even at road-side food stalls, cafés and takeaways there are opportunities to provide a more diverse and higher quality seafood offer
- There are over-looked opportunities to locate up-market food trucks at key locations around the area – particularly where people / visitors are already gathered; these could build on the example of pop-up food stalls / markets in many UK towns and cities, and raised interest in more exotic food offers as a result of TV, radio resulting from
- Much more could be done to promote the high quality fresh seafood landed to the area – through generic promotion, broad-based information provision, the structuring of seafood experience trails, and the organisation of seafood festivals / special events
- Committed younger generation of entrepreneurs – from fishermen to traders to hospitality industry – building families and future in these chosen peripheral locations; they are not given sufficient attention or credit in moulding the future of the sector

Table 12 – Characterisation of constraints facing different components of the local supply chain

<p>Fishermen</p> <ul style="list-style-type: none"> • Poor economy of scale – cannot hold over sufficient volume to strengthen price negotiation • Find it difficult to cooperate with other fishermen – fall out with each other after short time • Fickle – will jump when someone offers a higher price • Sell product to small number of locals, often on informal basis, but this outlet cannot absorb all landings • Harbour authorities not sympathetic to fishermen needs (infrastructure, holding facilities) • Short tourism season – next to no local demand outside season • Gear conflict – unnecessary and unproductive cost of lost gear • High cost of protecting individual creel grounds from other creelers • Could catch more crab, but prices unattractive • Could catch more finfish, but do not have the necessary quota and/or difficult to sell in small volumes • (Unfair) competition from fare-weather and hobby fishermen – particularly across summer season • Profitability not great – difficult to build capital reserves for further investment 	<p>Consumers</p> <ul style="list-style-type: none"> • Cannot buy local seafood – to eat, to prepare themselves, or to take home as a souvenir • In many / most restaurants no local seafood on menu • Poor quality of cooked seafood dishes • Limited seafood choice on menus • Not clear where to go to eat seafood • Either seafood is poorly cooked, or is presented in over-complicated dishes • Little information on where seafood comes from – either via the menu, or when asking staff • Finding seafood to eat when eating out in Scotland, other than fish and chips, is difficult, and when found, under-whelming • Many tourists visiting Scotland are used to eating high quality, simply prepared, fresh seafood – they would like to source local Scottish seafood but can't, and when they can they are too often disappointed • Eating out, poor quality seafood is expensive; good quality seafood is either very expensive or ridiculously cheap – standards vary wildly
<p>Caterers</p> <ul style="list-style-type: none"> • Difficult to source local product • Lack of information on where to obtain seafood • Lack of information on, and knowledge and understanding of, local fisheries • Cannot source all requirements from local sources (e.g. finfish, smoked fish) • Too much form filling to buy locally • Local fishermen not prepared to sell in small quantities • Sourcing local labour is difficult • Much shorter credit window than that offered by wholesale distributors • Short tourist season – Whitsun to August Bank Holiday – limited demand outside this • Unfamiliar with how best to cook and serve local seafood • Too much hassle sourcing locally; our customers want something cheap and cheerful – which we can better source through our regular wholesale distributors 	<p>Intermediaries</p> <ul style="list-style-type: none"> • Not getting paid – mainly export-related • Not getting paid / losing money – when a business goes bust • Not enough room in the market for many intermediaries • Local buyers prefer the simplicity of sourcing all requirements through national wholesale distributors • If focused on selling locally, not possible to absorb all that is landed by local suppliers / customers want wider range than is supplied by local fishermen • Some of the business models used, particularly for exporting, high risk – for example selling across auction markets in Spain • Holding live shellfish is not always easy • Sourcing local labour is difficult

With all these constraints it is a wonder that the industry functions at all – but not all is lost. As illustrated in the Skye and Lochalsh Case Study profiled in **Chapter 4** the industry has found a range of mechanisms by which seafood – whether sourced locally, or from elsewhere in Scotland, or from further afield – can be made available to locals and visitors through retailers, pubs and restaurants and takeaways. These are shown in **Table 13**.

Table 13 – Summary of ways seafood is supplied to the local market

<ul style="list-style-type: none"> • National wholesale distributors source and deliver wide range of food products on demand – including fresh, frozen and processed seafood • Specialist meat and seafood distributors supply live, fresh, frozen and processed seafoods on demand • Regional seafood specialists supply live, fresh, frozen and some processed products at retail and wholesale and delivered • Fish traders specialising in small range of species – e.g. scallops, Nephrops, lobster, smoked fish – supply smaller quantities, delivered by them, or by courier • Bespoke catering suppliers source and deliver against order • Fishermen supply small quantities of product direct to catering establishments or households • Fish vans sourcing product and operating from main distribution hubs serve householders along predictable routes and schedules • Supermarkets, grocers and delicatessens / cafes sell some fresh, frozen and processes seafood
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There remain, however, difficulties in matching up local production with local consumers, caterers and retailers – as follows:

Local catering outlet

- Time poor – need to source often 100s food items
- Need consistency of supply – regular supply, available on demand, consistent quality, predictable price
- Want product that requires little additional preparation
- Want it delivered to the door

Local fisherman

- No local contact point
- Cannot always supply
- Product as comes off the boat
- Can be delivered.

This mismatch is further illustrated in **Table 14**.

There are ways of getting around these difficulties, yet care needs to be taken to remain within the bounds of what is commercially sensible and practical. The local market cannot take all that the local boats can catch – fishermen need to protect their main routes to market, which almost inevitably requires selling to local consolidators and national traders. On the other hand, there is much that can be done to make local consumers and caterers more aware of what is available and how to get hold of it. This issue is taken up and discussed further in later sections below.

Servicing the export trade

Another outcome of the profiling exercise is that the trade in exporting live shellfish to southern Europe is risky – with most businesses incurring significant losses due to poor or

sharp practice at one time or another. This is particularly the case with respect to trade in live creel caught Nephrops.

Businesses inevitably invest considerable effort in seeking to manage these sorts of trading risk, and yet unexpected low payments, defaults and bankruptcies remain not only a recurrent threat but a reality. Many efforts have been made in the past to try to address these problems – with limited impact. Whilst recent recessionary pressures will have done little to alleviate such threats, the fact that so many different business models are practised by the industry in moving live shellfish from the producer to markets in France, Spain, Portugal and Italy is worrying (some models place a disproportionate part of the trading risk on fishermen / consolidator / exporter, which has demonstrably and repeatedly penalised this part of the supply chain, yet these models are still being accepted). And this is further complicated by the development of new markets in live shellfish in the Middle East, Far East / China, and South East Asia. It is not the prices that are offered and paid for such produce that are problematic; it is the bad debts and defaults that create havoc. This is an area that warrants attention.

5.2 Constraints and opportunities

Core arguments

Ensure a proportional response: In taking forward a number of development initiatives it is important to maintain a sense of proportion. Most of the revenue to inshore fishermen in the Kyle and Lochalsh area comes from live shellfish exports; a significant part of income to inshore fishermen across Scotland comes from live shellfish exports. Maintaining and servicing this largely export trade remains critical to this sector of the industry.

Local promotion of seafood: That said, however, more local opportunities remain un- or under-exploited. And here the story has two distinct sides:

the upside

- the local seafood industry is alive and well, with a bit of everything available – mussels, scallops, Nephrops (Nephrops), salmon, lobster, crab claws, oysters – live, fresh, part processed, and cooked – with chips
- the market for local seafood is colourful and varied – from luxury liner to ferry, gourmet to backpacker; and derived from the smallest of potters to industrial scale twin-rig trawlers, from scallop dredgers to scallop divers and farmers

the downside

- but whilst the tourist brochures present all sweetness and light in the Highlands and Islands, on the ground haddock and chips is promoted above locally caught Nephrops, lobster and crab
- unfortunately accessing locally sourced produce is not straightforward – for local caterers, let alone residents and visitors.

One relatively straightforward way of addressing at least part of this problem is to step up promotion of locally sourced product. Unfortunately the problem is that not enough people are doing it, and even when promotion is successful, what is offered is often not that good – and may not be local to boot. There is work to be done here.

Table 14 – Listing of key opportunities and evidence of past successes

Opportunities	Successes
<ul style="list-style-type: none"> • There are large numbers of B&Bs & self-catering establishments where people eating out – only small proportion of these get to sample local seafood • No locally smoked fish – opportunity for one or two smoke houses; plus almost all finfish is brought into area • Most caterers and visitors have poor comprehension of local fishing and seafood industry • By the same logic, a more coordinated approach is required to meeting local demand, and only then will it be possible to support a “buy local” / “buy local seafood” campaign • Hospitality industry missing a trick by not better understanding expectations of visitors; many visitors used to eating simple, high quality seafood; in all too many establishments the seafood on offer falls far short of their expectations • Very limited use of websites, social media, etc.; seafood is regularly used as a quality marque when promoting local tourism – makes good copy, and good photos • Next to no use of mail order, despite well-developed courier delivery services • Even at low price points, road-side food stalls, cafés and takeaways could offer a more diverse and higher quality range of seafood • There are over-looked opportunities to locate up-market food trucks at key locations around the area – particularly where people / visitors are already gathered • Much more could be done to promote the high quality fresh seafood landed to the area – through generic promotion, seafood trails, festivals / special events • Committed younger generation of entrepreneurs – building families and future in these chosen peripheral locations; they are not given sufficient attention or credit in moulding the future of the sector 	<p>Almost all the successes are where fishermen or others have added value to their core business through a degree of vertical integration:</p> <ul style="list-style-type: none"> • a skipper / owner selling his and others’ product; • a skipper / owner’s partner running a café / retail outlet using at least some own product; • a skipper / owner also running a mobile catering unit selling at least some own product; • a local buyer selling retail as well as wholesale; • a local buyer also processing / smoking <p>And/or by adding scale</p> <ul style="list-style-type: none"> • buying a second or third boat • investing in live holding facilities <p>Managing risk</p> <ul style="list-style-type: none"> • Getting the right (managed risk) business model when supplying live product to Spain, Portugal, France. <p>How have they been successful?</p> <ul style="list-style-type: none"> • They tend to have found practical ways to add value through some degree of vertical integration, and in doing so to have spread rather than increase the business risk • their activities have greatly increased their resilience to changes in the natural, social and business environment • they are better able to roll with the punches, and respond to change • Crucially they have found the capital that has made them able to make that investment – from profits, from other business activities, from family, from borrowings, from risk-taking <p>At the smaller scale of fishing activities it is a rarity for fishermen to have more than they need to just keep their fishing activities going – the people who have made the break are few and far between.</p>

Table 15 – Practical examples of successful initiatives

Local	Further afield
<ul style="list-style-type: none"> • Almost all the successes are where fishermen or others have added value to their core business through a degree of vertical integration: <ul style="list-style-type: none"> – a skipper / owner selling his and others' product; – a skipper / owner's partner running a café / retail outlet using at least some own product; – a skipper / owner also running a mobile catering unit selling at least some own product; – a local buyer selling retail as well as wholesale; – a local buyer also processing / smoking • And/or by adding scale <ul style="list-style-type: none"> – buying a second or third boat – investing in live holding facilities • Managing risk <ul style="list-style-type: none"> – Getting the right (managed risk) business model when supplying live product to Spain, Portugal, France 	<ul style="list-style-type: none"> • Providing added visitor experience <ul style="list-style-type: none"> – Seafood trails – various forms – some on Scotland, others in various parts of England – Fishing and seafood experience – visitor dimensions to harbours, restaurants, processing plants, lobster hatcheries, maritime museums, smokeries – numerous examples, but less numerous in Scotland – Seafood festivals, dinners, special events – Crabstock, Hastings, Mull, Eyemouth, ports in South West England, South Shields Music Festival • Information <ul style="list-style-type: none"> – Print and electronic brochures describing local seafood industry, dining, history, etc – the Minches Project, HIDB shellfish promotion, various heritage publications • Industry support and training <ul style="list-style-type: none"> – Coaching in simple seafood preparation and cooking – Rick Stein, local initiatives (including East of Scotland project Sea Here), Seafish courses and events – Coaching to fishermen in business planning and investment – Seafish, Group Training Associations, Business Gateway

Need to deliver to the standard that is promised: But it is not just about selling the product, it is also about what the product is and how it is prepared. Promoting local seafood is categorically not all about fine dining and gourmet restaurants (though this in itself helps). The inshore sector harvests great fresh seafood, but it is often very difficult to eat or buy that seafood in the area where it is caught, plus visitor expectations are all too often left unfulfilled. This should be a simple matter to address – but the issues are complex. Working together would help, but many factors work against this. As points of focus, a winning formula is local produce, cooked fresh in front of your eyes – no frills, good markup, the genuine article, plus a bit of theatre. Adding value to the raw material in this way – offering good quality and value for money – leads to impulse purchases, recommendations and repeat visits.

Recognise there are limits to what fishermen can do: Clearly the inshore industry would like things to be better / different – and in particular that their businesses were more profitable – but there are lots of reasons why they are not. Prime amongst these is commercial reality – most landings need to be sold away for processing or export; the local market cannot take all that is landed, and this situation is further tested by the short duration of the tourism season. In addition, fishermen could do more to help themselves – by upping their engagement in marketing and promotion, and in joining together to strengthen their bargaining power. But time, existing commitments, and relevant expertise act against them – they spend most of their time fishing, and do not have the time, energy or inclination to engage in other aspects of the business.

Nurture entrepreneurship: That said, there are people in the industry who have made a difference – fishermen, relatives of fishermen, traders, entrepreneurs. What has made these individuals different is that they view things strategically, they have a passion to see things change, they are persistent (often serial entrepreneurs), they can balance risk-taking with commercial realities, and crucially one way or another they have been able to put together the capital that allows them to make that investment. Of note, they tend to be individuals rather than groups / collectives.

6 Summary and conclusions

6.1 Study structure and focus

As designed, the study sought to investigate three dimensions of systems by which producers engaged with the market:

- a) **Product opportunities:** developing a better understanding of the inshore catch/landings profile; and potential for other species or changes in species mix
- b) **Market demand:** developing a better understanding of actual and potential demand for inshore fishery products, primarily in local, but also wider markets
- c) **Improved information exchange:** piloting and facilitating improved exchange of production and market information, at both local and national level, including identification of innovative trade cooperation models and wider utilisation of information technologies, to the benefit of both producers and traders/consumers.

This has been accomplished through a process of field examination and compilation and review of available reports and quantitative data. Initial scoping of the scale and distribution of **inshore fisheries** signalled the dominance of west coast fisheries over east coast fisheries, although this distinction weakened somewhat when only the activities of the under-10m fleet were considered. A key feature of the inshore sector is its (over-) dependence on exploitation of shellfish, and in particular Nephrops, lobster and brown crab. Strip out the activities of the Nephrops trawl fleet (which favours vessels in the range 10-15m) and it is the creel fisheries (generally smaller vessels – focusing on creel-caught Nephrops, and lobster and crab) – that dominate under-10m activity.

Alongside examination of the numbers, re-assessment in the context of logistical units – groupings of ports on the basis of commercial linkage, primarily on the basis of transport hubs – re-establishes the dominance of the west in relation to issues unique to inshore fisheries. And finally, a focus on geographic and economic peripherality and fishery dependence, a particular characteristic of inshore fisheries, also favours concentration of study efforts on the west coast systems.

Case study work focused on Skye and Lochalsh, and by extension on product transiting the area from the Western Isles via the ferry links from North Uist and Harris to Uig on Skye, and from Lewis to Ullapool to the north of this area. Field examinations also included the fishery systems of the Moray coast, from Burghead to Gardenstown. On balance, it is concluded that the fishery systems of the west of Scotland provide better contrast in identifying the constraints and opportunities typical of the inshore sector in general, but that the findings arising from this are just as applicable to inshore fisheries elsewhere, and even those in close proximity to major fishing ports, to major conurbations, and to major transport routes.

6.2 Pin-pointing those issues that constrain the sector

The outcome of field investigations demonstrated that from a commercial perspective the industry is well structured, dynamic and competitive. Overall, fishermen get a fair price for their product in relation to their particular context – traded volume, location, chosen sales route, etc.. Could they do better? Almost undoubtedly yes, but only with investment of substantially more effort, time and capital, all of which are in short supply.

In discussing constraints affecting small-scale fishermen and linked distribution and sales systems it has become evident that many of the issues are not new, and solutions have been developed and implemented by others elsewhere in Scotland and the UK. The obstacle is making industry practitioners aware of this, and facilitating the transfer of such knowledge and experience to where it is needed. This is an important finding.

In addition, however, lip service is also often given to replacing existing trading systems with others that would be more supportive of small-scale operators – e.g. fishermen cooperatives, partnerships, communal holding facilities, etc.. A supposition is that fishermen-managed trading businesses could offer advantages over existing trading businesses. Further examination of such views suggests that this is wishful thinking, and that the evidence does not support this. The commercial realities are the commercial realities, and fishermen have more than enough to do focusing on fishing, without taking on trading, marketing, etc., as well. That said, however, a very few have successfully expanded their business interests beyond fishing. Their contribution to the local economy has been significant, though under-recognised. More could be done to encourage such successes.

Thus, for example, various entrepreneurs have successfully within the geographical areas investigated have expanded their interests along the supply chain, but it should be stressed that these individuals are few; this is not a route open to most fishermen, or for which many fishermen are suited. These successful entrepreneurs tend to be serial investors, achieve success by extending their investments along the supply chain, and by working to limit their business risk. They tend to be singletons rather than joint investors or groups of fishermen, and they tend to be committed, focused and driven individuals.

Three other findings stand out in this study:

- (i) Most businesses involved in trading in live Nephrops (*Nephrops norvegicus*) have suffered at least one significant payment default (mainly through a company folding). This is a high risk business, and using the right (controlled risk) business model is crucial.
- (ii) Much more local seafood produce could be sold to visitors and tourists than is the case at present and, despite the short length of the tourist season in most parts of Scotland, exploiting this opportunity would yield benefits to both fishermen and caterers alike. That said, it is not within the grasp of fishermen and caterers alone to resolve this – inputs from a third party (more generic tourism, seafood industry, and economic development interests) is required.
- (iii) Were more seafood to be fed through to the caterers, there remains a mismatch between visitor expectations and the form and quality of seafood presented. There has to be more to the tourism seafood offer than “fish and chips”, yet use of other locally caught material is sparse, dishes often unnecessarily complicated, and the quality of preparation often underwhelming.

Future efforts need to be focused on providing better information to caterers and visitors on how and where to source local seafood, and on how to improve menu design and delivery. In addition, more effort should be made to help fishermen build the skills that would allow them to participate as investors / owners of businesses downstream from fishing – in business planning and in building the capital requirements of such venturing. It is not price information that fishermen lack so much as a better understanding of business opportunities open to them, and more needs to be done to inform caterers and visitors about local seafood.

Seafish and Seafood Scotland already provide a range of resources to support fishermen, caterers and other members of the supply chain in matters of good practice, quality, seafood preparation, menu planning, recipes and management of both kitchens and catering

establishments. Resources encompass printed material, videos and internet clips, through to hands on training, demos and bespoke business support. The availability of knowledgeable advice and support is not the problem; it is more a matter of getting small-scale caterers (cafés, restaurateurs, hoteliers, and even B&B and guesthouse owners) to recognise not only that they are missing a trick, but they need help. This is not so easy a matter to fix.

6.3 Further development opportunities

Some other development opportunities that might be taken forward in future initiatives include:

- Wider use of shore-based live shellfish holding facilities – essentially recirculation systems – at micro-, small and medium scales. These can be easily fabricated locally, can be housed in small lockups, in container units, or within small warehouses, and would help strengthen the negotiating position of many fishermen. This would also help overcome situations where fishermen are compromised by the inflexibility of the logistics of getting live shellfish from “keeps” to shore, and of offering greater environmental control over holding conditions (for example for live Nephrops).
- In part linked to the above, fishermen do require sufficient space to store gear and other equipment, ideally close to their place of work – the harbour, slip or mooring; it is not an optional issue. Planners and harbour authorities could be more supportive in making such space available.
- To encourage establishment of more fish smokehouses – at a small-scale, and possibly as adjuncts to existing businesses. These are scalable businesses, offer great (local) branding opportunities, and respond to the needs of local caterers, and tourist souvenir demand, with potential to develop and distribute products more widely.
- Work to stretch the tourism season. The Scottish coast is renowned for the great outdoors, and attracts large numbers of hill-walkers, water sports enthusiasts, and wildlife watchers. But still more can be done – by investing in mountain bike and cycle touring infrastructures, in off-season festivals and events, etc.. Weather is less of a constraint than it might have been in the past, and it is now more realistic to ensure that Scotland is open all year round. Adding a month to the main summer season and a few weeks to the winter season would pay dividends. Availability of local seafood has its part to play.
- Getting more (modern) mobile seafood catering units on the road is a relatively easy means by which some fishermen can invest along the supply chain – it is relatively low cost, not only do they catch at least some of the raw material required but they have good local knowledge as to possible sites to operate from, and there is the opportunity to represent some of the local colour of the area and of fishing. Inevitably this will require awareness of food hygiene issues, and there will be planning issues – but where there is a will these can be overcome.

Finally, there are a number of “big issues” that, if resolved, could greatly benefit inshore fishermen, but which fall outside the project brief:

- Dealing with the wide recognition that there are too many pots in the water – an issue that is too difficult an issue for producers to deal with on their own;
- Movement towards possible exclusion of trawlers from the 3nm zone; and

Provision of (more) inshore finfish quota to the inshore sector.

Appendix 1 – Terms of Reference

Title: Improving market intelligence and fishery production co-ordination in Scottish Inshore Fisheries – a pilot study

Introduction

This project will form part of a programme of projects that will gather evidence in support of sustainable Scottish Inshore Fisheries. At this stage a pilot project is envisaged, which will help to determine the feasibility of undertaking a Scotland-wide project in future. This project is one of three proposals available for tender that will contribute to developing the economic value of inshore fisheries.

Landings from Scottish inshore fisheries are mainly based on a limited number of key shellfish species and a pelagic hand-line fishery in certain locations. However, inshore catch is often made up of a far wider range of species which, due to a combination of factors, are not commercially landed. Equally some smaller-scale targeted fisheries exist with landings typically destined for niche markets or limited local consumption. An improved focus on the availability of a wider range of species from inshore waters has the potential to reduce pressure on established stocks and diversify the species that can be viably landed. This approach would enhance the economic value of the fisheries while maintaining or improving fisheries sustainability. This work area will be investigated through a series of linked projects.

Inshore fisheries are primarily prosecuted by locally based, small vessels (<12m) with home ports often in remote areas or with weak distribution links to key markets. The limited range of fish species landed partly reflects the ease of supply to established and primarily export markets through dedicated holding and transport links, which are often associated with quayside purchase of landings. However, while such arrangements provide convenient outlets for products they can constrain the ability for fishermen to maximise returns from their catch. In addition, they do little to advise the local or wider market of the range or seasonality of products potentially available from inshore waters. Given the often seasonal nature of catch, and associated quality and standards issues, there may be limited ability for fishermen to adequately assess potential market demand for species which are not routinely landed. Improving market intelligence for both fishermen, in terms of the quality and presentation of species which are marketable, and the consumers with respect to seasonal availability of possibly niche species from local fisheries, presents opportunities to maximise the economic value of inshore fisheries. While local outlets may be supplied through individual or small groups of fishermen there may be additional scope for wider markets to be serviced through collaborative initiatives based on reliable market intelligence. This project seeks to undertake a pilot assessment of the opportunities available to develop market intelligence and improve the economic potential of inshore fisheries.

Summary of requirements

Purpose:

To evaluate the potential for landing an increased proportion of inshore fish catch through informing the markets of local landings availability and advising fishermen of wider market opportunities.

Approach:

1. Within pilot local areas, establish the range of species and seasonality of catch in terms of both volume and quality considerations based on established fishing activities or perceived opportunities.

2. Establish the purchase criteria of existing local buyers of inshore fishery landings and determine opportunities for expanding species or seasonal opportunities. Evaluate within each fishery the key factors constraining landings of individual species based on perceived marketability or lack of market information.
3. Establish and pilot the potential to increase landings of catch based on improved local information provision relating to individual species availability and seasonality of peak quality landings.
4. Identify and pilot the provision of local fisheries and landings information through innovative and proactive means, identifying both traditional and novel species and seasonality of supply, for use in support of local marketing initiatives.
5. Evaluate the potential for local landings information from all inshore fisheries to be collated and disseminated to inform wider markets.
6. Investigate ways to ensure market intelligence generated through national schemes or bodies is able to be effectively disseminated and utilised at a local level by inshore fishermen.

Outputs:

A final report that includes:

1. Evaluation of species and seasonal availability of inshore fishery products from the pilot areas.
2. Evaluation of the potential economic impact of improved market and landings information for inshore fisheries in the pilot areas.
3. Production of inshore fisheries information and mechanisms to support local marketing of landings for the pilot areas.
4. Evaluation of the potential to improve marketing opportunities for inshore fisheries products in the pilot areas through improved market intelligence.

Duration:

The anticipated start date for this project is end June 2014. The final report should be submitted by end June 2015.

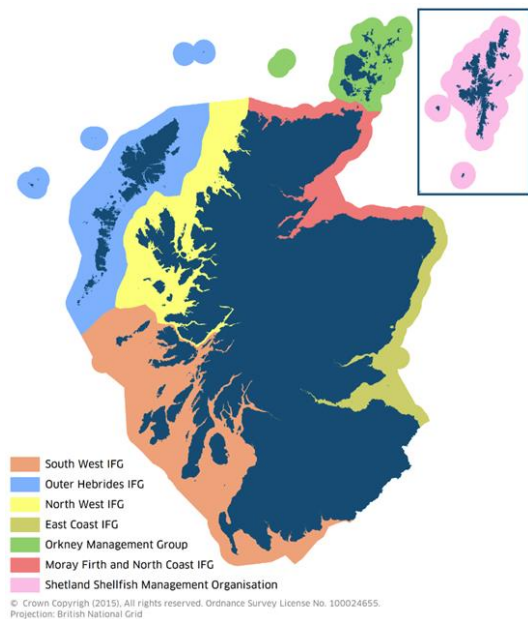
Appendix 2 – The methodology used to allocate 2012 and 2013 catches and landings to inshore and offshore areas

The allocation of catches to in-shore zones (0-6 and 6-12nm) has been undertaken using the catch and landings recorded in the FIN database. Allocation has been undertaken based on the proportion of the area of any single or group of ICES statistical rectangles falling with each of these the three categories 0-6, 6-12 and >12nm.

Prior to the introduction of e-logbooks catches were assigned to inshore and offshore zones by Port Offices. This is now no longer done.

The areas covered by the IFGs are as illustrated below. Specific area allocations are shown in the tabulations below.

For the cases where the landings are from a rectangle covering more than one in-shore/off-shore zone, the landings by in-shore zone have had to be estimated using the vessel's VMS data or, where no VMS data could be matched, assigned to an in-shore/off-shore zone on the basis of which zone covered the largest area of the ICES rectangle. The number of records for which this estimation was necessary was relatively small in 2012 but was in the order of 40,000 for 2013.



Because the estimates have been made by considerable manipulation of the data before being re-aggregated to IFGs, it is not consider that the consolidated data are disclosive.

Rectangles for which landings are split between IFGs are highlighted in yellow.

ICES_SR	ICES_AREA	FAO_AREA	IFG	AREA_LAEA_HEC TARES	%_OF_SR	area covered by IFG	% split of in- shore landings from rectangle	Assigned split	Comment	
38E4	Vla	27.6.a	SW IFG	3,431	1.0	60,277	100%	100%		
38E4	VIIa	27.7.a	Outwith IFG	279,001	82.2					
38E4	VIIa	27.7.a	SW IFG	56,846	16.8					
38E5	Vla	27.6.a	SW IFG	118	0.1	153,313	100%	100%		
38E5	VIIa	27.7.a	Outwith IFG	52,176	25.4					
38E5	VIIa	27.7.a	SW IFG	153,195	74.6					
38E6	VIIa	27.7.a	Outwith IFG	76,664	53.0	67,894	100%	100%		
38E6	VIIa	27.7.a	SW IFG	67,894	47.0					
39E3	Vla	27.6.a	Outwith IFG	323,622	91.5	29,998	100%	100%		
39E3	Vla	27.6.a	SW IFG	29,998	8.5					
39E4	Vla	27.6.a	Outwith IFG	49,997	16.1	260,212	100%	100%		
39E4	Vla	27.6.a	SW IFG	260,212	83.9					
39E5	Vla	27.6.a	SW IFG	49,350	100.0	49,350	100%	100%		
39E6	VIIa	27.7.a	SW IFG	161	100.0	161	100%	100%		
40E3	Vla	27.6.a	Outwith IFG	107,073	38.3	172,437	100%	100%		
40E3	Vla	27.6.a	SW IFG	172,437	61.7					
40E4	Vla	27.6.a	SW IFG	181,753	100.0	181,753	100%	100%		

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40E5	V1a	27.6.a	SW IFG	63,759	100.0	63,759	100%	100%	
40E6	IVb	27.4.b	EC IFG	7,465	100.0	7,465	100%	100%	
40E7	IVb	27.4.b	EC IFG	29,978	100.0	29,978	100%	100%	
40E8	IVb	27.4.b	EC IFG	6,656	2.2	6,656	100%	100%	
40E8	IVb	27.4.b	Outwith IFG	302,388	97.8				
41E2	V1a	27.6.a	Outwith IFG	260,777	75.6	83,969	100%	100%	
41E2	V1a	27.6.a	SW IFG	83,969	24.4				
41E3	V1a	27.6.a	Outwith IFG	16,330	5.3	291,522	100%	100%	
41E3	V1a	27.6.a	SW IFG	291,522	94.7				
41E4	V1a	27.6.a	NW IFG	872	0.8	110,934	0.79%	-	Only trivially in NW IFG - assign 100% to SW IFG
41E4	V1a	27.6.a	SW IFG	110,062	99.2		99.21%	100%	
41E5	V1a	27.6.a	SW IFG	5,867	100.0	5,867	100%	100%	
41E6	IVb	27.4.b	EC IFG	38,812	100.0	38,812	100%	100%	
41E7	IVb	27.4.b	EC IFG	197,313	69.7	197,313	100%	100%	
41E7	IVb	27.4.b	Outwith IFG	85,900	30.3				
42E2	V1a	27.6.a	NW IFG	3,657	1.1	247,742	1.48%	-	Only trivially in NW IFG - split only between OH IFG and SW IFG
42E2	V1a	27.6.a	OH IFG	178,366	53.5		72.00%	73%	
42E2	V1a	27.6.a	Outwith IFG	85,785	25.7				
42E2	V1a	27.6.a	SW IFG	65,719	19.7		26.53%	27%	
42E3	V1a	27.6.a	NW IFG	150,524	52.8	284,963	52.82%	53%	Only trivially in OH IFG - split only between NW IFG and SW IFG
42E3	V1a	27.6.a	OH IFG	252	0.1		0.09%	-	

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42E3	V1a	27.6.a	SW IFG	134,187	47.1		47.09%	47%	
42E4	V1a	27.6.a	NW IFG	51,932	80.2	64,740	80.22%	80%	
42E4	V1a	27.6.a	SW IFG	12,808	19.8		19.78%	20%	
42E5	V1a	27.6.a	NW IFG	47	100.0	47	100%	100%	
42E7	IVb	27.4.b	EC IFG	78,642	59.0	78,642	100%	100%	
42E7	IVb	27.4.b	Outwith IFG	54,609	41.0				
42E8	IVb	27.4.b	EC IFG	636	0.2	636	100%	100%	
42E8	IVb	27.4.b	Outwith IFG	339,928	99.8				
43E2	V1a	27.6.a	OH IFG	203,994	69.8	203,994	100%	100%	
43E2	V1a	27.6.a	Outwith IFG	88,303	30.2				
43E3	V1a	27.6.a	NW IFG	201,024	90.8	221,453	90.78%	91%	
43E3	V1a	27.6.a	OH IFG	20,429	9.2		9.22%	9%	
43E4	V1a	27.6.a	NW IFG	64,376	100.0	64,376	100%	100%	
43E5	IVa	27.4.a	MF&NC IFG	2,326	100.0	2,326	100%	100%	
43E7	IVb	27.4.b	EC IFG	15,342	100.0	15,342	100%	100%	
43E8	IVb	27.4.b	EC IFG	57,664	18.1	57,664	100%	100%	
43E8	IVb	27.4.b	Outwith IFG	260,589	81.9				
44E1	V1a	27.6.a	OH IFG	78,037	23.6	78,037	100%	100%	
44E1	V1a	27.6.a	Outwith IFG	252,669	76.4				
44E2	V1a	27.6.a	OH IFG	222,412	77.0	222,412	100%	100%	
44E2	V1a	27.6.a	Outwith IFG	66,331	23.0				

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44E3	Vla	27.6.a	NW IFG	140,689	55.5	253,430	55.51%	56%	
44E3	Vla	27.6.a	OH IFG	112,741	44.5		44.49%	44%	
44E4	Vla	27.6.a	NW IFG	117,617	100.0	117,617	100%	100%	
44E5	IVa	27.4.a	MF&NC IFG	25,849	100.0	25,849	100%	100%	
44E6	IVa	27.4.a	MF&NC IFG	164,250	77.9	164,250	100%	100%	
44E6	IVa	27.4.a	Outwith IFG	46,701	22.1				
44E7	IVa	27.4.a	EC IFG	69	0.0	72,130	0.10%	-	Only trivially in EC IFG - assign 100% to MFNC IFG
44E7	IVa	27.4.a	MF&NC IFG	72,061	34.5		99.90%	100%	
44E7	IVa	27.4.a	Outwith IFG	136,814	65.5				
44E8	IVa	27.4.a	EC IFG	42,189	13.5	43,138	97.80%		Only trivially in MFNC IFG - assign 100% to EC IFG
44E8	IVa	27.4.a	MF&NC IFG	949	0.3		2.20%		
44E8	IVa	27.4.a	Outwith IFG	269,635	86.2				
45E2	Vla	27.6.a	OH IFG	114,392	36.5	114,392	100%	100%	
45E2	Vla	27.6.a	Outwith IFG	199,316	63.5				
45E3	Vla	27.6.a	NW IFG	205	0.1	154,176	0.13%	-	Only trivially in NW IFG - assign 100% to OH IFG
45E3	Vla	27.6.a	OH IFG	153,971	89.8		99.87%	100%	
45E3	Vla	27.6.a	Outwith IFG	17,230	10.1				
45E4	Vla	27.6.a	NW IFG	182,300	72.9	249,945	72.94%	73%	
45E4	Vla	27.6.a	OH IFG	67,645	27.1		27.06%	27%	
45E5	Vla	27.6.a	MF&NC IFG	1,433	66.3	2,161	66.33%	100%	Only trivial areas of sea in this rectangle - assign 100% to MFNC
45E5	Vla	27.6.a	NW IFG	728	33.7		33.67%	-	

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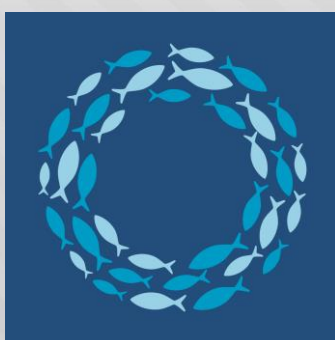
45E6	IVa	27.4.a	MF&NC IFG	76,763	58.7	76,763	100%	100%	
45E6	IVa	27.4.a	Outwith IFG	53,944	41.3				
45E7	IVa	27.4.a	MF&NC IFG	14,115	4.3	14,115	100%	100%	
45E7	IVa	27.4.a	Outwith IFG	312,765	95.7				
46E3	Vla	27.6.a	OH IFG	39,498	12.3	39,498	100%	100%	
46E3	Vla	27.6.a	Outwith IFG	282,706	87.7				
46E4	Vla	27.6.a	MF&NC IFG	202	0.1	117,412	0.17%	-	Only trivially in MFNC IFG - split only between NW IFG and OH IFG
46E4	Vla	27.6.a	NW IFG	83,588	26.2		71.19%	71%	
46E4	Vla	27.6.a	OH IFG	33,622	10.6		28.64%	29%	
46E4	Vla	27.6.a	Outwith IFG	201,252	63.2				
46E5	Vla	27.6.a	MF&NC IFG	82,024	29.2	95,973	85.47%	85%	
46E5	Vla	27.6.a	OMG	13,949	5.0		14.53%	15%	
46E5	Vla	27.6.a	Outwith IFG	185,365	65.9				
46E6	IVa	27.4.a	MF&NC IFG	73,177	32.5	145,013	50.46%	50%	
46E6	IVa	27.4.a	OMG	71,835	31.9		49.54%	50%	
46E6	IVa	27.4.a	Outwith IFG	80,141	35.6				
46E6	Vla	27.6.a	MF&NC IFG	0	0.0		0.00%	-	
46E7	IVa	27.4.a	MF&NC IFG	17,273	5.7	97,311	17.75%	18%	
46E7	IVa	27.4.a	OMG	80,039	26.3		82.25%	82%	
46E7	IVa	27.4.a	Outwith IFG	207,581	68.1				
47E3	Vla	27.6.a	OH IFG	40,289	12.7	40,289	100%	100%	

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47E3	Vla	27.6.a	Outwith IFG	277,705	87.3				
47E4	Vla	27.6.a	OH IFG	44,916	14.1	44,916	100%	100%	
47E4	Vla	27.6.a	Outwith IFG	272,787	85.9				
47E5	Vla	27.6.a	OMG	45,691	14.4	45,691	100%	100%	
47E5	Vla	27.6.a	Outwith IFG	272,438	85.6				
47E6	IVa	27.4.a	OMG	80,096	27.9	80,096	100%	100%	
47E6	IVa	27.4.a	Outwith IFG	206,683	72.1				
47E7	IVa	27.4.a	OMG	201,314	68.1	201,314	100%	100%	
47E7	IVa	27.4.a	Outwith IFG	94,142	31.9				
48E7	IVa	27.4.a	OMG	2	0.0	2	100%	100%	Only trivially 0-6 in-shore - however, include as has landings from the 6 - 12 in-shore on FIN
48E7	IVa	27.4.a	Outwith IFG	313,434	100.0				



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