

**Pelagic and Whitefish Processing Plant
and Associated Market Assessment**

Final Report for

Highlands and Islands Enterprise

April 2015

Disclaimer

This report is addressed to HIE ("the Employer/the Authority") in relation to the work commissioned, and is intended solely for their use.

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1 Introduction

In February 2015, Highlands and Islands Enterprise appointed Frontline, in partnership with Poseidon Aquatic Resource Management, to undertake a due diligence review of the pelagic and whitefish processing sectors in the Shetland Islands. The report presents our findings from this review.

1.1 Objectives

To assist HIE and other public sector bodies in their due diligence in deciding whether to provide support for a pelagic and whitefish processing plant in Shetland.¹ The study will:

- assess pelagic and whitefish quotas and the current and emerging opportunities in the market for Shetland vessels and processors
- assess current pelagic and whitefish landings in the local, regional and international market
- examine regional and international competition (focusing on Norway) and their share of the pelagic and whitefish market
- identify current and emerging barriers and opportunities for Shetland's pelagic and whitefish processing sector
- examine the relationship between vessels, processors and agents in the HIE area and internationally (focusing on Norway)

1.2 Outputs

The output from this research will be a report which will:

- identify current pelagic and whitefish processors in the HIE area and nationally, and understand the capacity and capabilities of their facilities, services they currently provide and their share of the market
- identify international pelagic and whitefish processors that regularly process fish caught in and around Shetland waters, and understand the capacity and capabilities of their facilities and the services they currently provide and their share of the market
- identify local and non-local vessels that regularly catch pelagic and whitefish in and around Shetland waters and land their catch at non-local processors and/ or markets, and understand why this occurs
- provide a market assessment of the pelagic and whitefish sectors including an investigation of the growth opportunities and whether growth is significant enough to sustain a new fish processing plant in Shetland
- provide an assessment of current and future pelagic and whitefish quotas for Shetland vessels and their main competitors. The key objective is to assess whether there will be the required volume of Total Allowable Catch available for local and non-local vessels to sustain the local industry
- understand the impact upon current operators if a new pelagic and whitefish processing plant of significant scale entered the market and this would include a market displacement and labour market displacement assessments²

¹ Any support would be subject to further considerations and due diligence including additionality, market failure, state aid assessments and budget availability.

² The report worked on an assumption of a processing plant(s) with a minimum daily capacity of 500 tonnes.

1.3 Research methodology

The research has drawn on evidence from the following publications:

- Inquiry into The Future of the Scottish Fishing Industry (Royal Society of Edinburgh)
- SPICe Briefing Papers (Scottish Parliament Information Centre)
- Scottish Annual Business Statistics (ONS)
- Scottish Input Output tables (Scottish Government)
- Scottish Fisheries Statistics (Scottish Government)
- Survey of the UK Seafood Processing Industry (Seafish)
- SPPA Members Database (plus websites and accounts of member organisations)
- Websites and Accounts of Shetland based pelagic and whitefish processing plants
- Statistisk Sentralbyrå website
- Fishery and Aquaculture Country Profiles – The Kingdom of Norway (FAO)
- The Economic Performance of the EU Fish Processing Sector (JRC)
- Shetland Input Output Study (SIC, 2013)
- Fish Landings in Shetland 2013 (NAFC Marine Centre)
- Trends in Scottish Fish Stocks Summer 2013 (NAFC Marine Centre)
- Documentation from previous request for Shetland Islands Council investment in the Whalsay harbour, including Mr Polson's personal comments;
- Shetland: Whalsay case study report (European Commission)
- Nergard group business plan proposal for Whalsay
- Data provided on the Shetland Seafood Auctions website
- Fishing TACs and Quotas, European Union, 2011-2015

The research also drew on evidence from our discussions with:

- Cllr Alastair Cooper, Shetland Islands Council
- Neil Grant, Director of Development Services, Shetland Islands Council
- Ruth Henderson, Chief Executive, Seafood Shetland
- Douglas Irvine, Executive Manager, Economic Development, Shetland Islands Council
- Brian Isbister, Chief Executive, Shetland Fish Producers' Organisation
- Gordon Johnson, Director, QA Fish Limited
- Sandra Laurenson, Chief Executive, Lerwick Port Authority
- Martin Leyland, Auction Manager, Shetland Seafood Auctions
- Simon Leiper, Managing Director, Shetland Catch
- Richie Simpson, Managing Director, LHD Limited
- Gary Spence, Director, Fish Sales, LHD Limited
- Cllr Allan Wishart, Shetland Islands Council
- Peter Morgan, Acting Harbourmaster, Shetland Islands Council
- Tommy Torvanger, Group CEO, Nergard
- Lorraine McEwan (Scottish Government)
- Allan Gibb (Scottish Government)
- A survey of five Shetland registered pelagic vessel skippers: George William Anderson (Adenia), Lowrie Irvine (Antares), Davie K Hutchison (Charisma), John Irvine (Zephyr), William Polson (Charisma) ³

³ comments given in confidence and therefore individuals are not quoted directly.

1.4 Report structure

The remainder of this report is structured as follows:

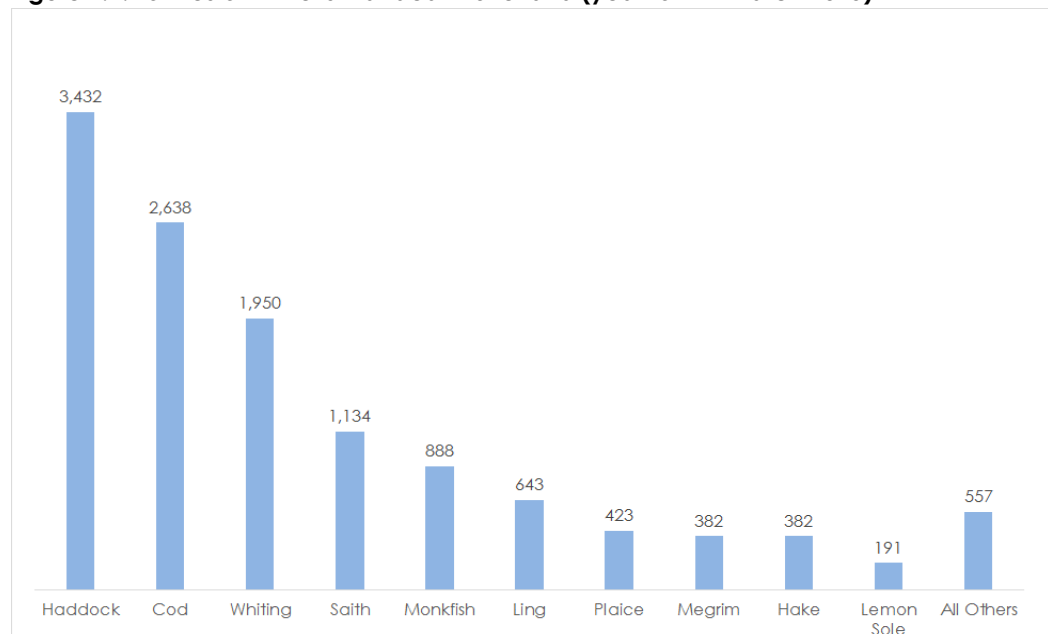
- In section 2, we review the whitefish industry in and around Shetland, including a review of who catches fish in Shetland waters, where it is landed, where it is processed, the strengths and weaknesses of Shetland's proposition and its future outlook
- In section 3, we review the pelagic fish industry in and around Shetland, again covering what fish is caught in and around Shetland, where it is landed, where it is processed, the strengths and weaknesses of Shetland's proposition and its future outlook
- In section 4, we consider whether Shetland has the potential to increase its processing capacity, including an assessment of what the displacement implications of an additional plant would be, whether a new plant would be economically sustainable and where the best location for any new plant would be
- In section 5, we will present the key conclusions of this study

2 Whitefish sector review

2.1 What whitefish are landed to Shetland?

Over the year to 24th March 2015, 12,621 tonnes of whitefish were landed in Shetland. The most commonly landed fish were haddock (3,432 tonnes landed, equivalent to 27% of the total catch), cod (2,638 tonnes landed, equivalent to 21%) and Whiting (1,150 tonnes landed, equivalent to 15%)

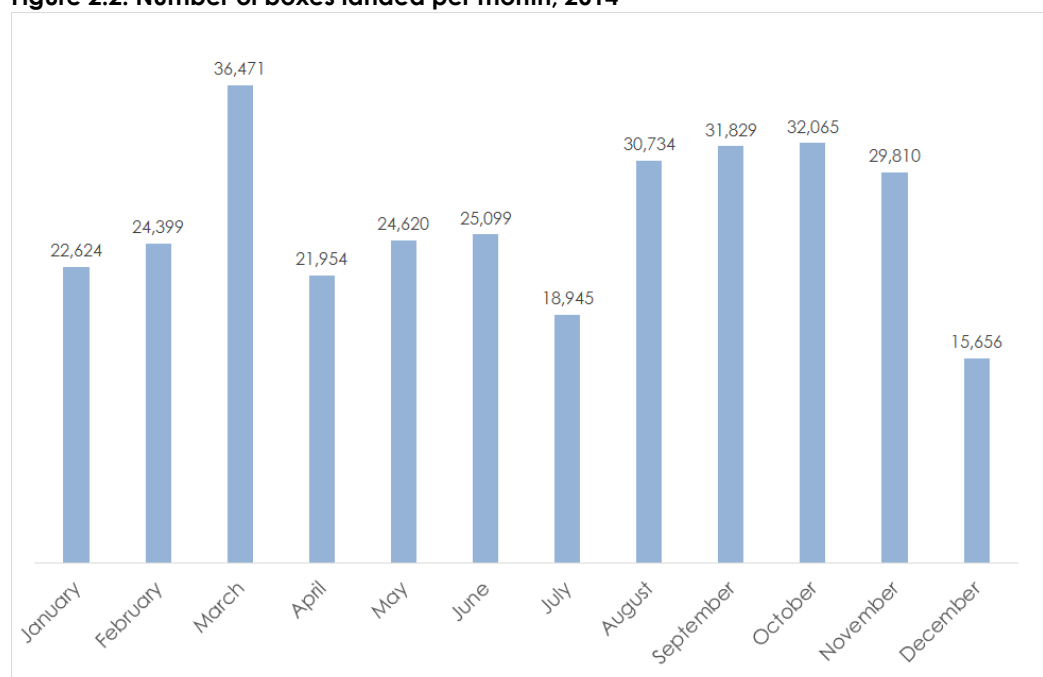
Figure 2.1: Tonnes of whitefish landed in Shetland (year to 24th March 2015)



Source: Shetland Seafood Auctions, March 2015

Landings of whitefish are made throughout the course of the year, with at least 15,000 boxes landed in every month during the course of 2014 and an average of over 26,000 boxes per month.

Figure 2.2: Number of boxes landed per month, 2014



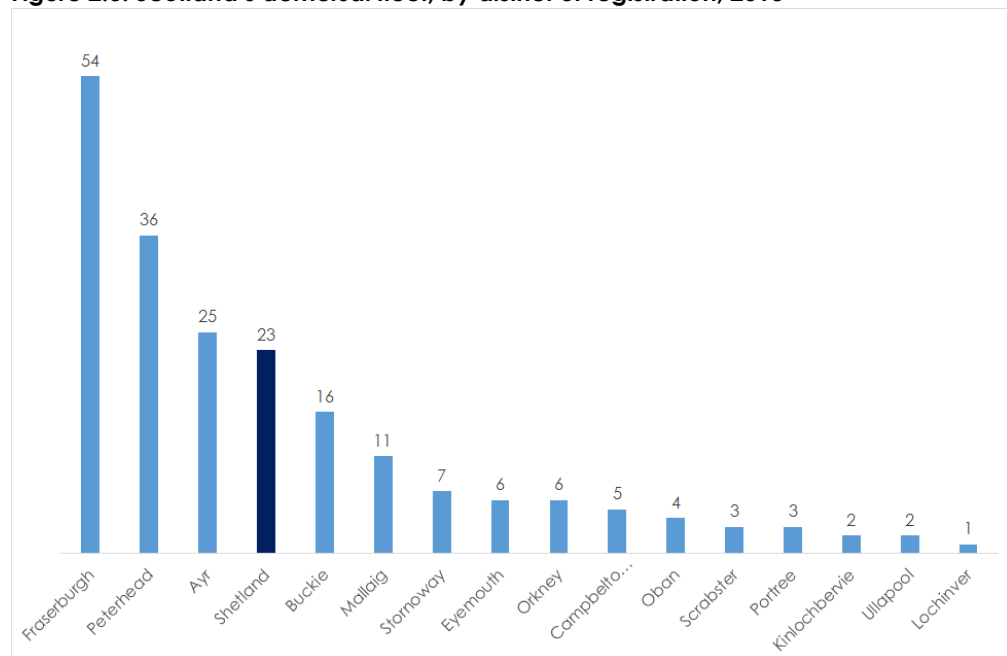
Source: Shetland Seafood Auctions, March 2015

2.2 Who catches this fish?

There are currently 204 demersal (whitefish) vessels registered in Scotland, 23 of which (11%) are registered in Shetland, making Shetland the third largest demersal fishing district in Scotland in terms of number of registered vessels.

At a Scotland wide level, the size of the demersal fleet is going through a prolonged period of contraction, with vessel numbers falling from 317 in 2004 to 204 in 2013 (equivalent to a decline of 55%). Unfortunately, published figures for Shetland do not go back this far, however the size of Shetland's fleet appears to be contracting more modestly, falling by only 1 vessel (from 24 to 23) since 2011.

Figure 2.3: Scotland's demersal fleet, by district of registration, 2013

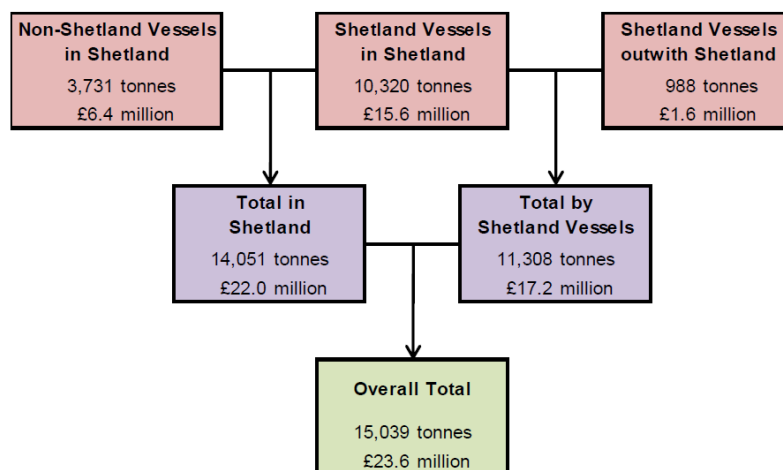


Source: *Scottish Sea Fisheries Statistics, 2013*

The majority of the fish that is caught in Shetland waters, or landed in Shetland ports, is caught/landed by UK registered vessels. While there is limited data available at a Shetland level on what proportion of landings are from non-UK vessels, data from the 2013 Scottish Sea Fisheries Statistics shows that 83% of all demersal fish landed in Scotland is landed by a UK registered vessel, and our stakeholder discussions indicate that the proportion in Shetland is likely to be even higher than this.

The Shetland fleet dominate the local market, with 73% of all white fish landed in Shetland caught by Shetland vessels, and with Shetland whitefish vessels landing 91% of their catch in Shetland.

Figure 2.4: Origins of Shetland Whitefish, 2012



Source: Napier I, NAFC Marine Centre, 2013

2.3 Where is it landed?

UK law requires that any significant landings of quota fish must be made at one of the country's 41 designated landing ports. There are currently 20 such ports in Scotland, three of which are in Shetland (Lerwick, Scalloway and Cullivoe). While no statistics on landings by port are publically available, we understand from our consultations that the vast majority of Shetland whitefish landings take place at Lerwick and Scalloway. Both of these ports have their own fish markets, with LHD Ltd auctioning all of the fish on behalf of the fishermen who land it, and with Shetland Seafood Auctions Ltd managing the auction process.

2.4 Where is it processed?

Our understanding, based on consultation evidence, is that Shetland currently has only a very limited whitefish processing capacity, and that the majority of the fish landed in Shetland is sold either as whole fish (i.e. no processing takes place at all) or drawn fish (i.e. the product is gutted, but no further processing takes place). It is then sold to either a wholesaler or a secondary processor before reaching their end customer.

In recent years the level of whitefish processing carried out in Shetland has declined, with stakeholders attributing this decline to a range of factors, including:

- **technological change:** including improved refrigeration facilities both on fishing vessels, and on freight vehicles, making it easier to transport fresh fish, caught in Shetland, to the UK mainland for processing, without degrading its quality;
- **material costs:** Shetland processors are at a competitive disadvantage in relation to their UK mainland competitors, due to the costs associated with transporting packaging materials to the factory; and
- **labour shortages:** given Shetland's low unemployment rate, and the availability of other forms of employment, which may be perceived to have better terms and conditions than fish processing jobs, labour shortages may present a challenge.

Shetland's largest whitefish processor is currently QA Fish Ltd in Scalloway which processes 250 tonnes (finished product weight) of whitefish per year, which amounts to just 2% of (unprocessed) whitefish landings). They also process scallops, crab and mussels. There is also a fishmeal factory, which processes some of QA's waste, on Bressay.

Until 2014, there was also a fish processing plant in Symbister, Whalsay, known originally as Williamson's and latterly as Shetland SeaFish, however this plant has now closed. We understand from our consultations with people who were close to the plant that the increasingly high costs of retaining labour at the site, and a reduction in the number of ferry sailings to and from the Island were the principal reasons for its closure.

2.5 Who is it sold to?

The majority of the whitefish landed in Shetland does not get processed on Shetland at all, and instead is bought by fish merchants, who sell it whole, usually to a buyer on the UK mainland. L Williamson Fish Sales Ltd are the biggest buyer in this market.

QA Fish are the biggest processor on Shetland. They primary process (e.g. debone and gut) the fish on Shetland, before selling it on to wholesalers or secondary processors, usually for ultimate sale in the food service sector. The majority of the processed fish is transported off Shetland by road, on the overnight Aberdeen ferry. The geographical split of its sales are as follows:

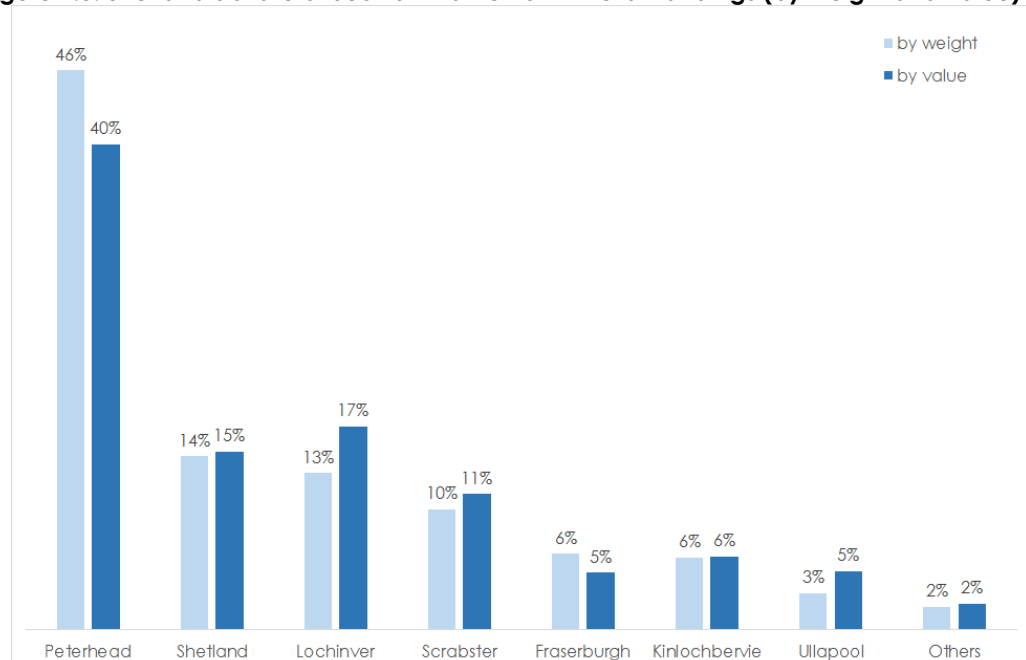
- between 1% and 2% of their processed fish is sold to local markets on Shetland
- approximately 30% of their fish is sold to customers in mainland Scotland
- approximately 40% is sold to customers in the remainder of the UK
- the remainder is sold outside of the UK, with the Republic of Ireland and France (particularly to secondary processors in Boulogne-sur-Mer) the principal buyers

2.6 Who are Shetland's competitors

2.6.1 Landings

In spite of its limited processing activity, Shetland still records a high volume of whitefish landings. 14% of all of the whitefish that is landed in Scotland is landed at Shetland, and these landings account for 15% of the total market in value terms. Shetland is therefore the second ranked landing district in Scotland in terms of weight landed, and the third highest in terms of value. One reason why Lochinver ranks above Shetland in terms of value is the type of fish landed. For example, the most commonly landed fish at Lochinver is Hake, which commands a higher value than Haddock, the most commonly landed fish in Shetland.

Figure 2.5: Shetland's share of Scottish market for whitefish landings (by weight and value)



Source: Scottish Sea Fisheries Statistics, 2013

2.6.2 Processing

In 2012, a survey by Seafish estimated that there were 325 fish processing plants in operation in the UK (this is a total figure across the whitefish, pelagic and shellfish sectors), of which 119 were in Scotland. The report found that the majority of Scotland's processing plants were in Grampian, including 7 of the 12 secondary processing plants (58%) and 63 of the 119 plants in total (53%). Processors in the Grampian region are the primary buyers of Shetland's whitefish landings.

Figure 2.6: UK Fish Processing Capabilities by Region

Region	Primary	Mixed	Secondary	Total
Grampian	23	33	7	63
Highlands and Islands	6	12	1	19
Other Scotland	6	27	4	37
Total Scotland	35	72	12	119
Humberside	37	18	11	66
North England	16	20	11	47
South/Midlands/Wales	12	23	7	42
S W England	14	17	3	34
N. Ireland	5	9	3	17
Total England, Wales and NI	84	87	35	206
Total UK	119	159	47	325

Source: Seafish, 2012 Survey of the UK Seafood Processing Sector

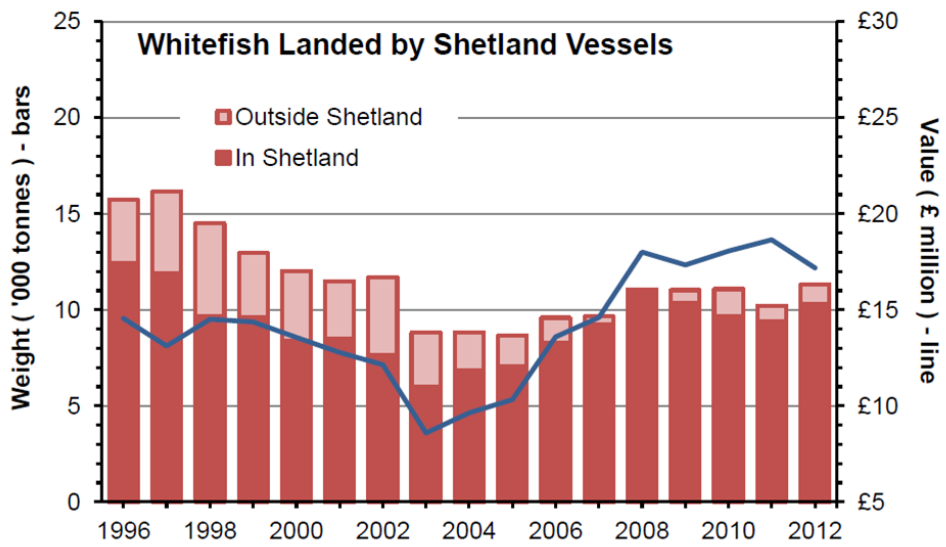
2.7 Market trends and future outlook

Between 1996 and 2004, the volume of, and value of, whitefish landings in Shetland went through a period of gradual decline. This trend appears to have reversed since 2003, with the volume of fish landed by Shetland vessels rising slightly over this time, the value of the fish rising more significantly over this time, and the proportion of the fish landed in Shetland increasing.

One factor that appears to have contributed to this recovery was the establishment of Shetland Seafood Auctions in 2003. This introduction of a new electronic, on-line, auction system has made the process of landing and selling fish on Shetland a quicker and more comfortable process, and has contributed to an increase in price, by enabling non-local buyers to bid for fish, without having to incur agency fees or be at the auction in person.

Stakeholders have also suggested that the quality accreditation work undertaken by Shetland Seafood Quality Control Ltd (SSQC) has further contributed to the success of this web-based system, as it has provided reassurance to remote buyers, who are unable to view the fish in person, that what they are buying is of a defined quality standard.

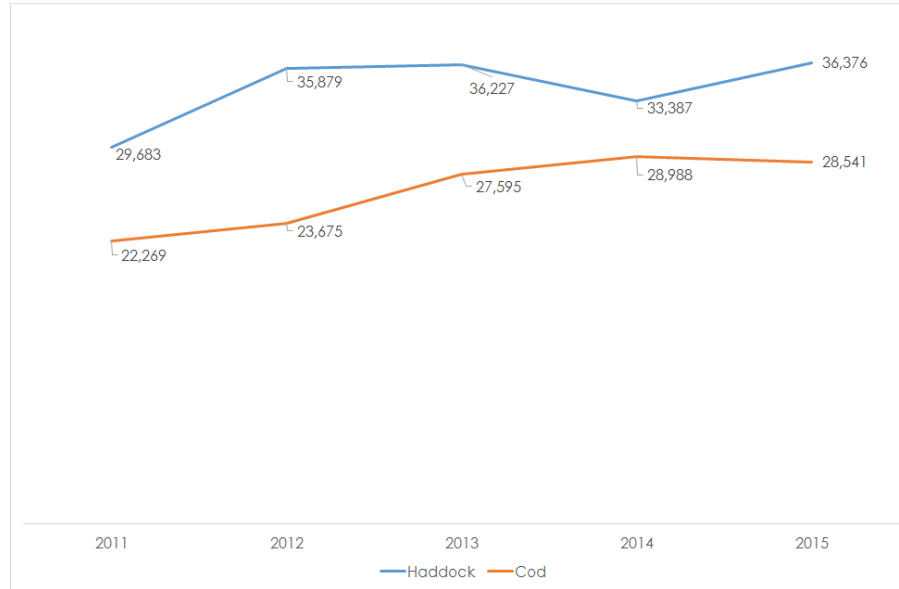
Figure 2.7: Whitefish landing statistics, 1996 to 2012



Source: Napier I, NAFC Marine Centre, 2013

Looking to the future, Shetland's whitefish fleet may benefit from an apparent recovery in whitefish stocks, and a resulting increase in quotas. Between 2011 and 2015, the UK's haddock quota increased by 23%, while its cod quota increased by 28%.

Figure 2.8: UK whitefish fishing quotas, 2011 to 2015



Source: European Commission, 2015

2.8 Strengths and weaknesses of Shetland's white fish processing offer

Shetland's whitefish processing sector has a number of competitive advantages and competitive disadvantages over its competitors elsewhere in the UK. Its advantages include:

- **proximity to stocks:** Shetland's waters contain an abundant supply of cod and haddock, making it an attractive location for vessel owners to land their catch
- **product quality:** whitefish that is caught and landed in Shetland has a strong quality reputation, and SSQC are thought to play an important role in helping to maintain this reputation

Disadvantages include:

- **a tight labour market:** according to the most recent figures from the Annual Population Survey, Shetland's unemployment rate in the year to September 2014 stood at 2.9%, a figure far below the 6.6% average across Scotland as a whole. This low rate makes it difficult for whitefish processors to cost effectively recruit staff into less well paid and less attractive positions compared to other opportunities on Shetland
- **costs of bought-in materials:** one of the stakeholders interviewed suggested that secondary processing in Shetland may have been inhibited by a need to import packaging materials
- **costs of transporting fish to market:** fish processors on Shetland can face higher costs in transporting their product to the end consumer compared to their UK mainland competitors
- **reliance on ferry links:** and this risk that stock could perish on occasions when bad weather prevents the ferry from sailing
- **non local stock purchases through the online auction system:** while this system has made it easier for whitefish vessels to land their fish on Shetland, it has also made it easier for processors on the UK mainland to buy fish from Shetland for processing elsewhere

3 Pelagic sector review

3.1 Where are pelagic fish caught?

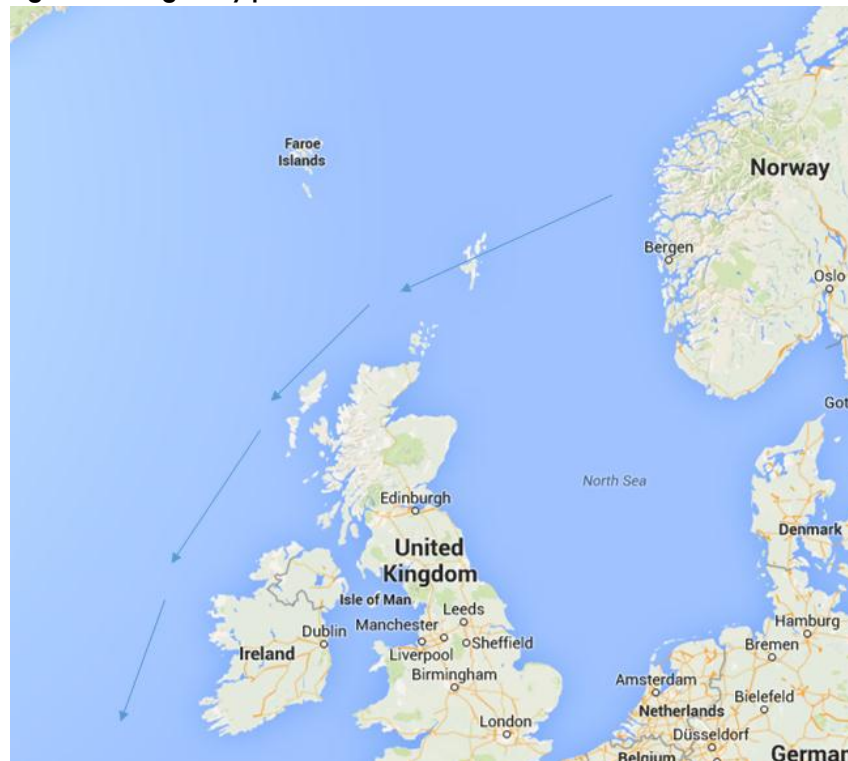
The two most commonly caught types of pelagic fish near Shetland waters are mackerel and herring.

Shetland's pelagic fleet catch most of their herring quota in late Summer, when the fish comes into Shetland waters as part of an annual migration. Shetland's waters have always been a traditional area for catching pelagic species, but over the last decade, large shoals of mackerel have been targeted to the west of Shetland.

The proximity of the resource to Shetland and the fact that the fish are in better condition than when found further south later in the year, makes Shetland a strategically important area for the pelagic fisheries.

The fleet start to pursue their mackerel quota during the Autumn when the fish begin to cross the UK-Norway median line on their south-westerly migration towards the Bay of Biscay. The fish pass closest to Shetland between November and December, before continuing South past the Hebrides and the west coast of Ireland in January and February.

Figure 3.1: Migratory patterns of mackerel



Source: approximation, based on consultation responses

3.2 Where do the Shetland pelagic fleet land their fish?

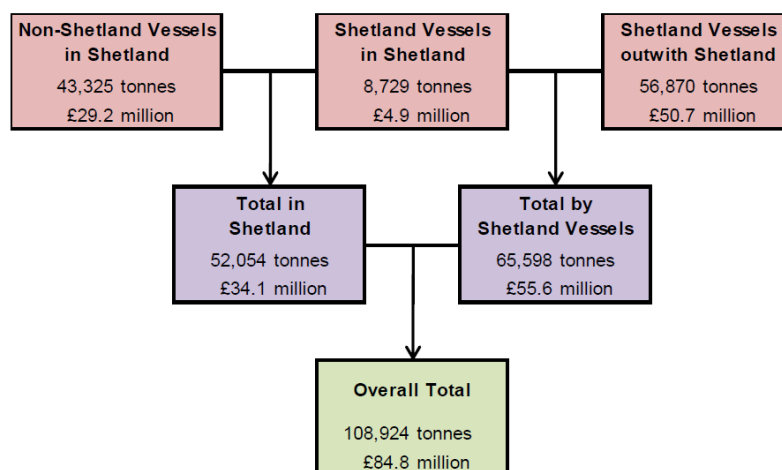
The pelagic fishing market differs from the whitefish market in the respect that all of the fish that is caught is landed directly to the buyer's processing plant. Once the fish is caught, the fisherman contact their agent (LHD Ltd in the case of all of the Shetland vessels), who negotiate a sale on behalf of the vessel. The fish is then transported to the buyer's plant.

Vessel owners take a number of factors into account when deciding where to land their stock. These include:

- **proximity to the fish:** in the case of mackerel, vessels are most likely to catch a high volume of large fish if they are positioned close to the head of the shoal. Given the migratory patterns of the fish, vessels will only make a limited number of attempts to catch these fish before the fish move into the deeper and less accessible waters of the Bay of Biscay. This creates a disincentive to land the fish too far north or east of where it was caught, as this would involve taking the vessel away from where the fish are
- **port facilities:** in circumstances where vessels require maintenance or servicing, they are likely to land their fish at a port which has the facilities to facilitate these needs
- **availability:** the level of catch that a pelagic plant is able to take in and process at any point of time is dependent upon the amount of docking space available (i.e. whether it is technically possible for two vessels to land simultaneously), the volume of unprocessed fish that the plant has capacity to store, and the speed with which they are able to process and ship out the fish they take in. If a plant has recently taken in a large landing, they may be less inclined to take in another landing, and may therefore either choose not to bid for the landing, or offer a lower price
- **fuel costs:** over the past year the global cost of fuel has reduced considerably. However, in spite of these lower costs, vessel owners will still factor in the cost of steaming their vessel to each processing plant when deciding where to land their catch
- **fish quality:** mackerel can lose condition over the course of the season, so fisherman can often sell their fish for a higher price in the earlier months of the season. Shetland has a competitive advantage in this area, as the vessel owners believe that the fish are in best condition during the time that it is in the waters to the west of Shetland
- **price:** as well as all of the above, vessels will also factor in which plants offers them the best prices when deciding where to land their catch. The location of the most price competitive plant can vary over the course of the year due to variations in supply and demand, and exchange rate fluctuations

Shetland is part of a pan Atlantic/North Sea market for pelagic fish, and there is often only a limited connection between where vessels are registered and where they land their catch. For example, Shetland vessel owners only land 13% of their fish in Shetland.

Figure 3.2: Origins of Shetland pelagic fish, 2012

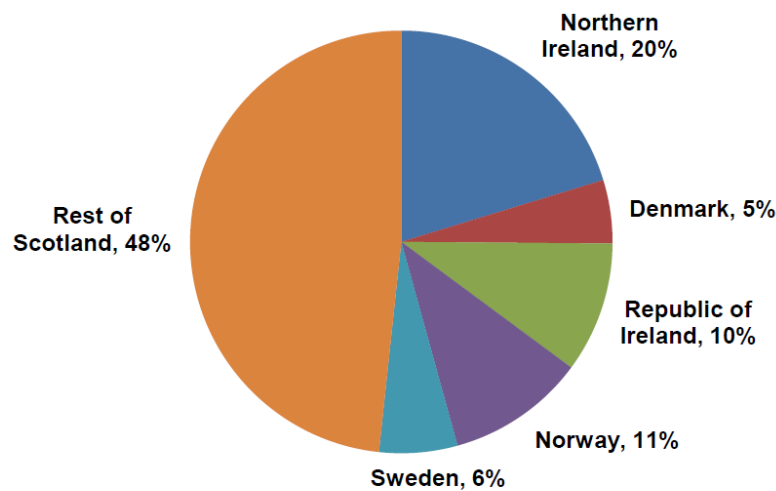


Source: Napier I, NAFC Marine Centre, 2013

3.3 Who else lands their pelagic fish in Shetland?

Approximately half of all non-Shetland vessels who land their catch on Shetland are registered elsewhere in Scotland⁴. 20% are registered in Northern Ireland, 10% in the Republic of Ireland and the remainder in the Scandinavian nations of Norway, Sweden and Denmark.

Figure 3.3: Origins of pelagic fish landed in Shetland by vessels not registered in Shetland, 2012



Source: Napier I, NAFC Marine Centre, 2012

3.4 Overview of Scotland's pelagic fish processing sector

There is currently one pelagic processing factory operating in Shetland, which is Shetland Catch in Lerwick. It can process mackerel, herring, blue whiting and horse mackerel, and has the capacity to process around 1,000 tonnes of fish per day.

We have not been able to establish how many pelagic processing plants there are across Scotland as a whole. We are aware that the Scottish Pelagic Processors Association lists 12 members, however one of these is Shetland Catch itself, one is the fishmeal and fish oil plant at Bressay, and one is North Bay Pelagic in Peterhead, which is currently closed following a fire in January of this year. The other nine processors in Scotland are:

- **Caley Fisheries:** operate factories in Peterhead and in North Shields, Tyne and Wear. In addition to fish processing, they also provide a number of other services to vessel owners, including administration, accounting, management, fish selling, net making, rigging and chandlery services
- **Croan Seafoods:** operate a pelagic and whitefish factory in Peterhead, buying-in fish from all UK ports. They can process the fish whole round frozen, hand fillet or machine fillet the fish, and sell it to a global market via their subsidiary company, Pelagic Freezing (Scotland) Ltd
- **Denholm Seafoods:** operate a factory in Peterhead. They process mackerel, herring, horse mackerel and blue whiting. The fish arrive at the quay in the vessels refrigerated tanks. From here they are pumped ashore and graded. Depending on the size they are then processed according to the customer needs as a range of cuts including whole round; headed & gutted; butterfly flaps; hand cut fillets; and gutted. Herring Roe is collected at this time for

⁴ There are currently 15 pelagic vessels registered elsewhere in Scotland, including 10 in Fraserburgh, 4 in Peterhead and 1 in Stornoway

separate processing. Most of their products are sold to the Eastern European market, and they own a refrigerated distribution centre in Szczecin, Poland

- **International Fish Cannery:** the only manufacturer of canned fish in the UK, based in Aberdeen. It focuses on the production of mackerel fillets, brisling sardines and other quality seafood products under private label agreements (including for John West) and for the food service industry.
- **Nor Sea Foods:** a smoked fish specialist with production sites in Fraserburgh and Aberdeen. In Aberdeen they predominately cold smoke white fish (haddock, cod, whiting and coley) and kippers; whilst in Fraserburgh they predominately hot smoke to produce chilled, ready to eat, mackerel fillets and salmon.
- **Lunar Freezing:** a vertically integrated company, which operate 7 vessels (3 pelagic trawlers, two whitefish trawlers, one whitefish seiner and one purse seiner), operate whitefish, salmon and pelagic processing factories in Peterhead, Fraserburgh and Aberdeen; and operate a fleet of articulated units, refrigerated trailers and tanker
- **Young's Seafood:** part of the Findus Group, one of Europe's largest frozen food and seafood companies; operate a processing plant in Fraserburgh as well as their main plant in Grimsby
- **United Fish Industries (UFI):** producers of fishmeal and fish oil from fish trimmings, with processing plants in Grimsby, Killybegs and Aberdeen
- **Interfish:** A vertically integrated, Plymouth based fish processing company, which owns a major shareholding of the Altaire (one of the eight pelagic vessels in Shetland), and owns the currently closed North Bay Pelagic plant in Peterhead

3.5 Overview of Norway's pelagic fish processing sector

Norway has a vertically integrated, corporatised fish sector, with many of the processing plants operating as subsidiaries of large holding companies. Major companies in this market include:

- **Nergard AS:** a vertically integrated group of nine companies which, between them, own five whitefish fishing vessels; 11 pelagic and white fish processing plants, a property business and a fish sales businesses. Most of the company's sites are in the Islands of northern Norway, including on the islands of Sørøya and Senja, and on the Lofoten archipelago. It's 11 plants include 7 whitefish plants, 1 fish-oil plant, 2 active pelagic plants, and 1 currently inactive plant
- **Norway Pelagic:** is a Norwegian pelagic fish processing multi-national with plants in Norway, the UK, Ireland and Denmark. It is divided into two divisions; food (consumption) and feed (protein concentrate, fishmeal and fish oil). It operates 14 food factories and 6 feed factories in Norway, and its sites cover most of the Norwegian coastline, from Egursund in the South to Honningsvåg in the north. Six of its plants (one fishmeal plant, and five food plants) are clustered in the town of Maløy, a town which, according to some of the stakeholders we spoke to, is a key competitor to Shetland for pelagic fish landings. In addition to its Norwegian sites, the company has also acquired a share of Shetland Catch, and either owns or part owns the three UFI sites in Grimsby, Aberdeen and Killybegs, the Rossyew feed factory in Greenock, a food factory in Skagen, Denmark and a distribution business in the Ukraine

3.6 Overview of Ireland's pelagic fish processing sector

Ireland's pelagic sector is dominated by Co. Donegal, which is home to 10 of Ireland's 14 pelagic fish processors⁵. Killybegs is the key port town in Donegal and, although the town's population is smaller than Lerwick⁶, it contains 8 pelagic processors. Each of these processors are, however, smaller in scale to Shetland Catch, and the town's combined daily potential output is 1,645 tonnes, compared to a daily potential output of 1,000 tonnes at the Shetland Catch site⁷.

While the total volume of fish being processed is growing, and the turnover value of the sector is stable, increased mechanisation has meant that the number of people employed in fish processing in Killybegs fell from 435 to 204 between 2003 and 2009⁸.

Outside of Killybegs, there are also pelagic factories in Dungloe, Co. Donegal (two factories); Rossaveel, Co. Galway; Dingle, Co. Kerry; Castletownbere, Co. Cork and Skibbereen, Co. Cork.

3.7 Strengths of Shetland's pelagic processing offer

Like the whitefish processing sector, Shetland's pelagic processor has a competitive advantage over its competitors at some points of the year due to its proximity to the fish stocks. However, the migratory patterns of the fish means that this is only the case for certain months of the year.

The quality of the facilities at Shetland Catch are also seen as an advantage, with the plant often described as being 'state of the art' during the consultation exercise.

3.8 Weaknesses of Shetland's pelagic processing offer

It is difficult to source data on pelagic fish prices, as most sales in the UK are carried out through one-to-one deals between the processor and the fisherman's agent, while in Norway sales are conducted through a national online auction site (Norges Sildesalgslag) which only offers transaction price information to its registered members. However, the majority of the stakeholders we spoke to (including Shetland Catch themselves) took the view that Norwegian producers are often able to offer vessels a better price than Shetland Catch.

The key driver of this price differential appears to be the cost of labour and, linked to this, Norway's more generous welfare system, under which the state is able to pay fish processors their full salary for any weeks when they are out of work. This means that Norwegian processors are able to lay-off workers at the end of the fishing season, and re-employ them at the start of the following season. By contrast, Shetland Catch are required to pay staff a full salary for 12 months of the year, even if they do not carry out any processing activities for six of these months.

A second factor which may offer Norwegian plants a competitive advantage over those in the UK is the extent of the Government funded marketing resources that are invested through the Norwegian Seafood Export Council to promote Norway's produce. These are thought to far exceed those invested in the UK by Seafish, making Norwegian plants better positioned to export their products to the lucrative Japanese and emerging Chinese markets.

A third factor that may give areas such as Norway and Ireland a competitive advantage is the degree of vertical integration which appears to exist between their

⁵ Source: Bord Iascaigh Mhara

⁶ According to National Records of Scotland, Lerwick had a population of 7,040 in 2012 while, according to the 2011 Irish Census, Killybegs had a population of 1,297.

⁷ Sources: Killybegs EC Case Study Report 2010, consultation with Shetland Catch

⁸ Source: Killybegs EC Case Study Report 2010

pelagic vessels and processors, which can make it in the financial interests of local vessels to land their catch with their partner company, thus incentivising loyalty to their local processor.

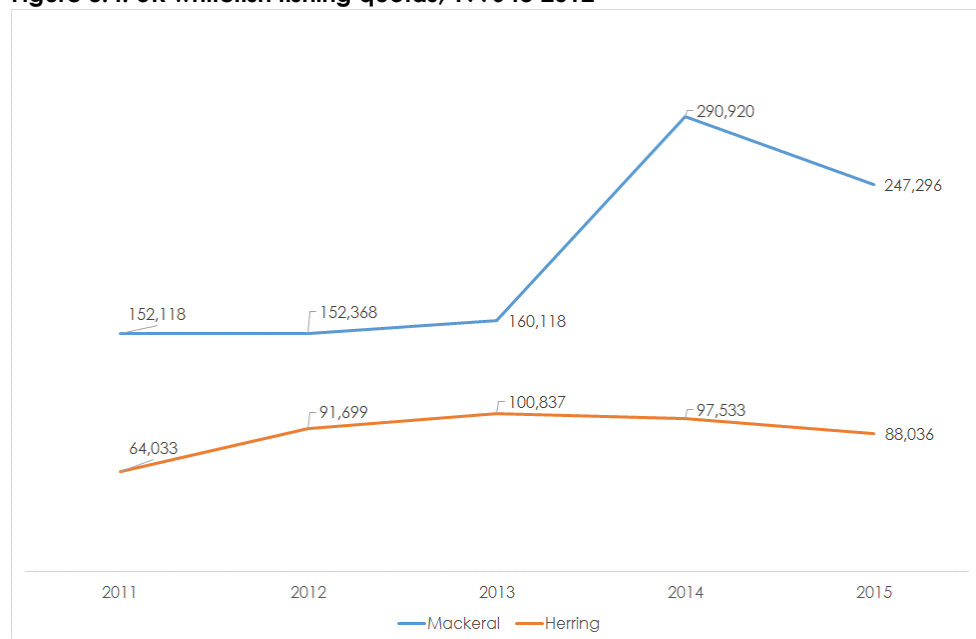
3.9 Future outlook

Many of the consultation participants suggested that, as a result of previous EU efforts to control fish stocks, the stocks of mackerel and herring in the North Sea and Atlantic are now at record levels. It was suggested that recent sightings of tuna fish and whales (who both consume herring and mackerel) in Scottish waters provided evidence of the growth of these stocks. Indeed, Highlands and Islands Enterprise are currently funding research into the movement of tuna in the waters around the Outer Hebrides⁹.

Stakeholders raised concerns around the extent to which European quota policy was recognising these changes, with the UK's herring quota falling in each of the last two years. Both species are, however, subject to long term management plans that provide better stability over annual quota setting as the extent to which quota can be increased or decreased is limited. The quota for mackerel increased strongly in 2014, as a result of healthy stocks.

The mackerel and herring stocks are subject to international agreement via Coastal States Agreements. A three party agreement between the EU, Norway and the Faroe Islands around mackerel fishing was agreed in 2014, but Iceland has not signed and catches by the non-coastal states of Greenland and Russia remain under negotiation. This causes uncertainties for the industry dependent on these management agreements, with significant catches above the levels proposed by scientific advice also likely to affect market price.

Figure 3.4: UK whitefish fishing quotas, 1996 to 2012



Source: European Commission, 2015

Political uncertainty may also present a risk to pelagic processing, with two of Shetland Catch's biggest export markets, Ukraine and Nigeria, experiencing periods of political instability, and a third, Russia, currently exercising a ban on UK food imports.

⁹ <http://www.hie.co.uk/growth-sectors/tourism/news/tourism-operator-investigates-viability-of-fishing-for-bluefin-tuna-in-outer-hebrides-waters.html>

4 Displacement assessment and options appraisal

This section considers whether it would, theoretically, be beneficial for Shetland to increase its whitefish and pelagic processing capabilities, and if so how it should go about this. It will begin by examining what the displacement implications of a new plant are likely to be. It will then go on to examine the range of options open to Shetland for increasing its pelagic and whitefish processing capacity. Finally, it will score each option against a range of criteria in order to identify the most appropriate course of future action.

4.1 What would be the displacement implications of a new processing plant?

The creation of a new processing plant could result in displacement economic activity elsewhere in the Shetland economy through:

- **property market displacement:** any future processing plant would need to be located on or near the shoreline, in a harbour where deep water berthing is permissible. Such locations are in limited supply, and those sites that do currently exist, such as Lerwick and Sella Ness, are often in use by oil and gas businesses either for industrial purposes or to house their workforce. It is therefore highly possible that the development of a new processing plant in Shetland could lead to such a location becoming unavailable for any other form of economic activity.
- **raw material market displacement:** As only 2% of whitefish landings are currently processed in Shetland, the potential for a new whitefish processing plant to displace raw material is negligible. From a pelagic sector perspective, if a new pelagic processing plant were to be built in Shetland, there is a possibility that it may compete with Shetland Catch for raw materials, including landings of fish. However, as both plants would operate in a pan northern-European market, meaning that a processing plant in Norway, Denmark or Ireland would be just as much a competitor as Shetland Catch would be, such displacement is again likely to be limited. As evidence of this, Killybegs, a small community in Co. Donegal, is currently able to support eight plants. However, it should be noted that their combined capacity is only 645 tonnes above that of Shetland Catch.
- **labour market displacement:** as previously mentioned, Shetland has a very low unemployment rate. This means that, were a new plant to be established, it may need to recruit staff either from Shetland Catch/QA Fish or from another business elsewhere in the Shetland economy
- **product market displacement:** it is conceivable that two processing plants in Shetland could compete with one another by trying to sell their finished products to the same buyer. However, given that Shetland Catch and QA Fish currently sell their goods all over the world, and does not generally market them strongly on their Shetland provenance, this risk may be low.

Overall, our assessment is that the risks of labour market displacement and property market displacement are likely to be high, the risks of raw material displacement and product market displacement are likely to be low.

4.2 Options considered

In our options appraisal process, we examine the relative merits of seven possible options for the future development of pelagic and whitefish processing in Shetland.¹⁰ These are:

- **Option 1: Do minimum** - Based on the standard option appraisal methodology set out in HM Treasury's *Green Book* publication, we have included a do minimum option, under which Shetland's pelagic and whitefish processing capabilities remain unchanged at their current levels. The inclusion of this option is standard best practice, as it allows us to understand the level of additionality offered by any change to the status quo
- **Option 2: Immediate support for a new facility in Symbister** - Last year, a proposal was put forward to house a new pelagic and whitefish processing factory in Symbister, Whalsay. We will examine the merits of this option
- **Options 3 and 4: Immediate support for a new facility at Lerwick or Sella Ness** - we will examine the relative merits of either of these two alternative locations
- **Options 5, 6 and 7: Deferred support for a new facility at Symbister, Lerwick or Sella Ness** – we will examine whether it would be better value to defer support for a development at Symbister, Lerwick or Sella Ness to a later date.

We provide a detailed explanation of our option appraisal approach in the Appendix.

Figure 4.1: Artists impression of proposed harbour development at Symbister



Source: Development applicants

¹⁰ Scalloway and Cullivoe were not considered in this option analysis due to the limited capacity these piers have for harbour expansion

4.3 Scoring criteria

We have scored each option against the following four criteria, each of which has been assigned equal weighting and given a score out of 25:

- **economic impact:** the extent to which each option will help Shetland establish itself as a successful fish processing region; help the fishing fleet secure a good price for their catch; and help those businesses that supply goods and services to the fishing and fish processing sectors
- **displacement impacts:** the extent to which the option can be delivered without displacing jobs, industrial land or economic activity from other businesses in the Shetland economy
- **social impacts:** the extent to which each option could support the sustainability of rural communities on Shetland
- **minimising costs:** the extent to which each option can be delivered without placing a cost burden on Shetland's public sector bodies

4.4 Scoring

4.4.1 Economic impact

The option to build in Lerwick is likely to bring the greatest level of benefits to Shetland's fish supply chain as it is the only option located in a designated whitefish port, and is therefore the one most likely to assist the whitefish fleet to secure a competitive price for their fish. It will also involve developing a new facility in Shetland's largest settlement, and therefore in the most appropriate location for local engineering, chandlery and retail businesses to sell goods and services to visiting vessels.

In all cases, we have assumed that an immediate development would be twice as beneficial as a deferred development.

The scores allocated to each option on this criteria were therefore:

- Do minimum: 0
- Immediate – Symbister: 10
- Immediate – Lerwick: 25
- Immediate – Sella Ness: 8
- Deferred – Symbister : 5
- Deferred – Lerwick: 12.5
- Deferred – Sella Ness: 4

4.4.2 Displacement Impacts

Shetland has a buoyant economy, but this has also resulted in the island facing certain economic challenges. It has one of the UK's lowest unemployment rates, and it is therefore difficult to create new employment opportunities without creating labour shortages for other Shetland businesses. It is also an economy in which there is high demand for quayside space, and every available landing berth could be put to a multitude of economic uses, and where it is difficult to build on a harbour-front location without taking away a viable location for an alternative investment.

These issues are greatest in Lerwick, and in the areas closest to the Sullom Voe terminal, such as Sella Ness, but are less acute in areas like Symbister. As these displacement issues are often driven by the requirements of major current investments, such as the land, labour, and workforce berthing facilities required to support the Total Shetland Gas Plant development, it is possible that the displacement impact of any new fish processing facility would reduce once work on this gas plant is complete. However, stakeholders have suggested that further planned investments by Chevron (a new gas

plant) and BP (a gas sweetening facility) may lead to construction activity continuing on Shetland for a many more years.

The scores allocated to each option on this criteria were therefore:

- Do minimum: 25
- Immediate – Symbister: 5
- Immediate – Lerwick: 0
- Immediate – Sella Ness: 0
- Deferred – Symbister : 20
- Deferred – Lerwick: 15
- Deferred – Sella Ness: 15

4.4.3 Social Impacts

The option to build in Symbister is likely to yield the greatest social benefit for a remote and rural community, as it would help to sustain Whalsay's population, both by supporting the creation of new fish processing jobs on the island, and by encouraging more vessels to land on Whalsay and use its local facilities. It would also involve the expansion of the island's harbour, and the construction of a new breakwater, which should improve access and safety in this small and busy harbour.

The social impacts of a development at Lerwick or Sella Ness are likely to be less significant. However they should lead to an increase in the number of foreign vessels landing at these two ports, and thus help to increase international awareness of the two ports.

As before, we have assumed that an immediate development would be twice as beneficial as a deferred development.

The scores allocated to each option on this criteria were therefore:

- Do minimum - 0
- Immediate – Symbister - 25
- Immediate – Lerwick - 10
- Immediate – Sella Ness - 10
- Deferred – Symbister - 12.5
- Deferred – Lerwick - 5
- Deferred – Sella Ness - 5

4.4.4 Minimising costs

The option to build a new factory at Symbister is likely to be the most expensive option, as it would require a significant investment in upgrading the harbour facilities to make this possible. We expect the options to build at Lerwick to be less costly than this, given the fact that these ports already contain berthing spaces that are sufficiently deep, and sufficiently large to accommodate a new plant. The Construction, General Cargo and Heavy Lift Jetty at Sella Ness is, at 80m, sufficiently long to accommodate pelagic vessels. However, with a deck level of 5.27m above chart datum, it may not be ideally suited in terms of its depth (by comparison, the Charisma has a draft of 7.8m).

Following the HM Treasury principle of social time preference, we have assumed that a deferred investment would be preferable to an immediate investment from a cost minimisation perspective, while we have assumed that 'do minimum' would represent the least costly option to the Shetland public sector.

The scores allocated to each option on this criteria were therefore:

- Do minimum - 25
- Immediate – Symbister - 0
- Immediate – Lerwick- 10
- Immediate – Sella Ness - 5
- Deferred – Symbister - 5
- Deferred – Lerwick - 15
- Deferred – Sella Ness - 10

4.4.5 Overall scores

Aggregating the above scores produces the following overall scores for each option.

- Do minimum - 50
- Immediate – Symbister - 40
- Immediate – Lerwick - 45
- Immediate – Sella Ness - 23
- Deferred – Symbister - 42.5
- Deferred – Lerwick – 47.5
- Deferred – Sella Ness - 34

This is shown in the table below:

	Economic impact	Displacement impacts	Social impact	Cost	Total score
Weighting	25	25	25	25	100
Do minimum	0	25	0	25	50
Immediate - Symbister	10	5	25	0	40
Immediate - Lerwick	25	0	10	10	45
Immediate - Sella Ness	8	0	10	5	23
Deferred - Symbister	5	20	12.5	5	42.5
Deferred - Lerwick	12.5	15	5	15	47.5
Deferred - Sellaness	4	15	5	10	34

Based on this analysis, we recommend that the 'do minimum' approach represents the most appropriate course of action for Shetland's public sector at this time due to labour and property market displacement, and development costs

5 Conclusions

Shetland's waters are abundant with fish and, in 2012, 15,039 tonnes of whitefish and 108,924 tonnes of pelagic fish were caught in its waters. However, the proportion of this fish that gets processed in Shetland is very low, with only 2% of landed whitefish processed at QA Fish, and with only 13% of all pelagic fish caught by Shetland vessels landed at Shetland Catch.

There should therefore be enough available fish stocks in Shetland waters to support a new fish processing plant without having any significant raw material displacement implications for the plants already operating on Shetland, with the new plant instead displacing landings from plants in Aberdeen City and Shire, Norway and the Republic of Ireland.¹¹ However, while raw material displacement is likely to be low, the risks of labour market and property market displacement are likely to be higher, given the low unemployment rates, and the limited, and highly sought after, supply of harbour space on Shetland.

If a pelagic whitefish processing plant were to be pursued, possible locations for this could be at Sellaness, Symbister or Lerwick. After weighing up the strengths and weaknesses of each possible location in terms of potential supply chain benefits for Shetland businesses, social benefits, displacement implications and development costs, our analysis has concluded that Lerwick would be the most suitable location for any such development, and would offer best value for money for any potential public sector support, though it may be preferable to delay any such investment until such a point as the local economy is less overheated, and the displacement implications of any investment are less significant.

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¹¹ HIE considers displacement at three geographical levels: local area, Highlands and Islands, and Scotland. Other public sector bodies may consider different levels of displacement.

Appendix: Details of multi-criteria analysis methodology

The option appraisal findings presented in this report follows the multi-criteria analysis techniques recommended in HM Treasury's Green Book appraisal guidance.¹²

The Green Book guidance recommends this technique as a way of identifying which options ought to be taken forward to a more detailed cost-benefit analysis study, rather than as the sole basis of an investment decision, and we would therefore recommend that our findings be interpreted in this way.

While there is, by necessity, an element of professional judgement in the choice of indicators, weights and scores, we have tried to keep our assumptions as transparent and objective as follows, and have applied the following principals to our analysis:

- **non-correlation:** we have sought to identify independent and non-correlated assessment criteria where possible. For example, we have included all of the economic impact effects (including effects on the fleet, effects on the processing sector, and effects on the supply chain) under a single criteria, rather than including them separately as, if option X were to outperform option Y on any one of these indicators, it would do for each of the other indicators as well
- **equal weighting:** we have attached equal weighting to each of the scoring criteria, thus effectively assuming that the economic impact, social impact, displacement implications and costs of each option are of equal importance
- **result spread:** in order to get a spread of results, and to allow a preferred option to emerge, we have attached the maximum possible score (25) to the option that we believe will deliver the optimal outcome against each indicator, and a minimum possible score (0) to the option that we believe will deliver the least optimal option. Each of the option options are scored according to how good or bad we believe them to be relative to these two extremes. Therefore, if any one option performs best on each of the criteria, it will receive an overall score of 100, whereas if it performed worst on each criteria, it would receive an overall score of 0.

¹² <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government>