European Commission, DG MARE

Studies for carrying out the Common Fisheries Policy:
Lot 3 Socio-economic dimensions in EU fisheries

Shetland: Scalloway case study report

Scalloway town and harbour (Photo courtesy of Poseidon)
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Abbreviations and acronyms

DCF: data collection framework
FTE: full-time equivalent
GBP: British pound (EUR 1 is equal to GBP 0.84 in April 2013)
ICES: International Council for the Exploration of the Sea
MSC: Marine Stewardship Council
NAFC: North Atlantic Fisheries College
SFA: Shetland Fishermen’s Association
SFF: Scottish Fishermen’s Federation
SFPO: Shetland Fish Producers’ Organisation
SFCT: Shetland Fisheries Training Centre Trust
SIC: Shetland Islands Council
SPFA: Scottish Pelagic Fishermen’s Association
SSMO: Shetland Shellfish Management Organisation
SSQC: Shetland Seafood Quality Control
1 Methods

1.1 Secondary data sources
A number of data sources have been used to prepare this report, including:

- data on fish landings from Marine Scotland Science Fisheries statistics;
- population statistics, taken from Scottish government neighbourhood statistics and Shetland health board;
- employment statistics, provided by the Shetland Islands Council Economic Development Unit.

Some data is only available at the Shetland level as it is collected only at county (Shetland) scale.

1.2 Interviews with focus groups
Community representatives included community council representatives, councillors, Highland and Islands Enterprise and Scalloway Harbour Authority representatives.

Two stakeholder sessions were held for fishers. All fishers in the community were invited, by letter/email, posters and radio advertisement. Due to the high level of shareholder ownership within the fleet, it was not possible to distinguish owner and non-owner crew prior to the session. Eight fishers attended (approximately 15% of all fishers). Given the working rotations of fishers, this is thought to represent 60% of those ashore during the survey period. Of the 28 vessels in Scalloway, four were represented (14%). Fishers reported that attendance would have been higher but distrust of EU-led projects prevented attendance.

1.3 Questionnaires
As all vessels are shareholder owned by a number of the boat crew (varying from 60% to 100% of the crew), distinguishing between owners and crew was difficult. There is a low level of crew mobility within the fleet, so non-shareholding crew also have a sense of ownership towards the vessels. All stakeholder representatives completed crew questionnaires. Skippers also completed the owner questionnaire.

2. Settings

2.1 Description of the Scalloway case study site
Scalloway is on the North Atlantic side of Shetland, with the divide between the North Atlantic and North Sea crossing through Shetland, north-south. The eastern side of Shetland includes an extensive offshore area characterised by flat sandy seabed with occasional pockmarks (seabed craters), and small inshore firths often with sandbanks, mud flats and sandy beaches. In contrast, the western side of Shetland has a rockier coastline exposed to the full force of the Atlantic.

Scalloway is Shetland’s second-largest settlement. The harbour area is run by Shetland Islands Council (SIC). Scalloway harbour accommodates small vessels (recreation and small shellfish boats) in two
marina areas, larger fishing vessels across two dock areas and large oil vessels on an outer pier. Whitefish and shellfish are landed into Scalloway.

![Figure 1 Location of Scalloway](image)

Fishing has traditionally been Shetland's largest employer and while it remains one of Shetland's largest industries, reduction in fleet size and increases in fleet efficiency have resulted in a decrease in the number of people directly employed in the industry. There has been a similar trend in Scalloway, but fishing and related ancillary industries remain important employers.

Scalloway is home to approximately 20% of the Shetland whitefish fleet. It should be noted that all the Shetland whitefish fleet will land into Lerwick, Scalloway and Cullivoe regardless of their home port. Shellfish landings are spread across Shetland. Shellfish landings in 2010 were valued to GBP 5.8 million (EUR 6.9 million), slightly less than 1% of all Scottish vessel landings. Landings into Scalloway represented less than 2% by weight and volume of all Shetland landings.
2.2 Demographics

The population estimate for Scalloway is 812 people, 3.6 % of the Shetland population. A breakdown of age structure for the Scalloway population is not available but is likely to be similar to that of the whole of Shetland (see national level report).

Shetland has a very small proportion of residents originating outside the UK. This is also true of Scalloway, where the proportion of residents originating outside the EU is estimated at less than 1% of the total population. Across Shetland 98.1 % of the community members originated in the UK. This is higher than the Scottish average of 91 %. A breakdown of residents whose origins are non-UK is not available at a Shetland level.

The number of individuals entering and leaving Scalloway is not available. The average life expectancy at birth is not available at the Scalloway level, and due to the population size could not be accurately estimated.

2.3 Employment opportunities/Sector overview

Scalloway is one of the key employment centres of Shetland. Employment opportunities within Scalloway include marine engineering, fish processing, construction, aquaculture, retail, education, leisure centre, oil service industry, social care and public sector jobs. Sullom Voe is within commuting distance of Scalloway, approximately 40 km to the north, as is Lerwick 7 km to the east. The fishing industry provides direct employment within Scalloway but also to related sectors such as marine engineering, processing and transport.

While fishing is still an important industry in Scalloway, decommissioning has reduced the number of whitefish vessels within Shetland. Therefore fewer people are employed within fishing, which has also affected dependent businesses and the Shetland economy has become increasingly dependent upon public sector employment. Nevertheless, Shetland Islands Council is currently making a number of expenditure cuts and this is expected to result in a reduction of public authority jobs available.

Aquaculture is an important employer in Scalloway and the surrounding area, providing permanent year-round employment. There are 29 finfish farms and 23 shellfish farms in the surrounding area, although these are not normally serviced directly from Scalloway harbour but from private piers. Scalloway is home to the second largest finfish (salmon) processing factory in Shetland, processing approximately 40 % of Shetlands farmed salmon. Aquaculture processing and wild fish processing does not take place in the same factories. However, many companies’ including engineering and transportation will service both the wild fisheries and aquaculture companies.

In 2009 the average yearly wage in Scalloway was lower than the Shetland average at GBP 29,297 (EUR 33,985) compared to the Shetland average of GBP 30,180 (EUR 35,008). Unemployment statistics are not available beyond the Shetland level. Unemployment in Shetland is below the national average, varying between 1.7 % and 2.2 %, since 2005. Across Shetland the number of full-time equivalent (FTE) employees in fish catching and fish processing has decreased from 1997-2011, falling by 25 % and 27 % respectively, largely because decommissioning reduced the number of whitefish
boats in 2002-4. Since 2003 the decline in these sectors has been less rapid, declining by 10 % and 3 % respectively. This trend is likely to be similar in Scalloway.

In Scalloway fisheries-related employment comprises a much higher percentage of FTE jobs, with 34 jobs in wild-fish processing, and others in aquaculture farming and processing. Fish catching is estimated to provide 35 FTE jobs. Direct employment in fish catching still contributes 2 % of all FTE employment opportunities across Shetland. This is higher than the Scottish average of 0.2 %. Fisheries (fish catching, aquaculture and fish processing) directly employ 8.6 % of the workforce across Shetland. Direct employment is likely to be higher in Scalloway, estimated at 10 % of Scalloway-based FTE jobs.

### 2.4 Fisheries

Fishing remains a significant and well-regarded industry within Scalloway and Shetland as a whole. The fleets have remained in local ownership and although a small number of non-EU crew have now been employed by Lerwick-based boats, none were observed in Scalloway.

While there are positive trends in terms of the value of the landings, the fishing sector faces significant challenges. Scalloway community representatives and fisheries owners expressed concern that rising fuel prices, quota costs, quota restrictions and reduction in days at sea have reduced the profitability of the sector, particularly the whitefish fleet. This makes it more difficult to attract investment to upgrade vessels and makes the industry less attractive to young people.

#### Infrastructure

Scalloway is managed by the SIC Ports and Harbours Authority. Scalloway harbour offers a range of facilities for fishing boats, including fish processing, sales, marine engineering, transportation and fish supplies (for example, nets and ropes).

#### Seasonality

Employment in Shetland is dominated by full-time, year-round work, with only the tourism sector showing any seasonality. Business tourism comprises a significant proportion of the tourism industry, and does not have a seasonal pattern. Whitefish fishing is non-seasonal and occurs throughout the year. Due to the reduction in days at sea, some boats may choose to make fishing trips based on weather and market prices. Shellfish fishing takes place all year round, but creel fishing levels can be higher in the summer when the weather is better, reducing the risk of losing gear.

In Scalloway the fleet comprises two main fisheries: inshore shellfish (creel and scallop dredge) (84 %) and whitefish (demersal) (16 %), Table 1. There are no Scalloway-owned pelagic boats and pelagic boats do not normally land into Scalloway. This differs to the rest of Shetland, where the fleet comprises inshore shellfish (82 %) demersal (13 %) and pelagic (5 %) fisheries. Nationally, the Scottish fleet comprises inshore shellfish (88 %), demersal (11 %) and pelagic (1 %).

The Scalloway whitefish fleet has reduced in recent years due to decommissioning. However, it still represents 21 % of the Shetland fleet and 2.1 % of the Scottish fleet. In Scalloway the shellfish fleet comprises creel and scallop dredgers. The Shetland shellfish fleet represents 10 % of the total Scottish shellfish fleet. In Shetland almost all the shellfish fleet comprises vessels 0-24 m in length with just one
vessel over 24 m. The shellfish fleet comprises creel (81 %), scallop dredge (17 %) and nephrops trawl (4 %). In comparison, the Scottish fleet comprises 76 % creel, 10 % scallop and 13 % nephrops. Restrictions on the number of scallop dredges mean that it is not economical to operate large shellfish dredging boats. This has meant that the Shetland shellfish fleet is dominated by smaller boats.

Changes of gear type (for example, trawl to seine net) within the whitefish fleet or changes to fishing areas are hampered by the quota restrictions. Targeting of new species requires the acquisition of the new quota.

Table 1 Fleet segments in Scalloway fleet

<table>
<thead>
<tr>
<th>Segment (length class, m)</th>
<th>Number of vessels</th>
<th>Proportion of Shetland fleet</th>
<th>Main gears used</th>
<th>Number of crew (average)</th>
<th>Main species fished</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>21</td>
<td>109 (19 %)</td>
<td>Creel</td>
<td>1</td>
<td>Lobster, brown crab, green crab, velvet crab</td>
</tr>
<tr>
<td>0-10</td>
<td>3</td>
<td>20 (15 %)</td>
<td>Scallop dredge</td>
<td>1</td>
<td>King and queen scallop</td>
</tr>
<tr>
<td>10-15</td>
<td>1</td>
<td>3 (33 %)</td>
<td>Nephrops trawl</td>
<td>1</td>
<td>Shellfish</td>
</tr>
<tr>
<td>10-15</td>
<td>1</td>
<td>6 (17 %)</td>
<td>Scallop trawl</td>
<td>1</td>
<td>King and queen scallop</td>
</tr>
<tr>
<td>15-40</td>
<td>5</td>
<td>24 (21 %)</td>
<td>Trawl - TR1</td>
<td>5</td>
<td>Cod, whiting, haddock, anglerfish</td>
</tr>
<tr>
<td>Total</td>
<td>31</td>
<td>162 (18 %)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Scottish government.

2.4.1 Whitefish fleet (demersal)

Fleet segment as a whole

Historically, the Scalloway whitefish fleet has been locally owned by a number of local shareholders who also work on the boats. All boats are still locally owned (rather than owned by external companies). While shareholders and crew members are sometimes related, this is not true of all shareholders or all boats. In the past, groups of fishers would group together to buy a new boat, but this is becoming increasingly difficult due to the availability and cost of quota.

Working patterns have changed due to the reduction in days at sea, which now means that some boats can only fish on 120 days per year. Working patterns differ between vessels. Most boats work between one and two weeks at sea, followed by one to two weeks at home. Some boats work a rotating crew system: for example, five on board, four ashore.

Wind direction and strength influence choice of fishing areas. In response to strong winds fishers traditionally fished closer inshore and on the leeward side of Shetland. However, reductions in permitted days at sea and the introduction of cod-closed areas have restricted the choice of fishing areas. This has reduced the fleet’s ability to fully exploit available grounds and has meant vessels are increasingly having to exploit the same areas.
The increasing cost of fuel and the reduction in days at sea means that fishers are targeting grounds further inshore, looking for shoaling fish such as cod, haddock and saithe, rather than high-value but more dispersed species such as monkfish. Increasing costs have also resulted in a move from trawling to seine netting as it is more fuel efficient.

Vessels are crewed by four to nine people, with normally four to six onboard at any one time. The crew types are skipper, engineer, mates, cooks and deckhands. Any of these individuals may be shareholders, although skippers are normally shareholders. There are no managerial or administrative roles associated with the vessels. Crew demographics are shown in Figure 2.

Figure 2 Age, gender and place of origin for crew types in Scalloway

There was no evidence of spouse or partner formal or informal involvement in the whitefish industry. There might have been previous involvement of spouses or partners in ancillary industries such as fish processing, but they were not directly employed by the vessels. Of those surveyed, 75 % of their fathers had also been fishers. As not all crew members were surveyed, it is difficult to quantify broader family involvement. However, of those surveyed, nobody reported that family members also worked on the same vessel.

Economics

The Scottish and Shetland whitefish fleets have shown record landed values. This is reflective of the increase in price of key stocks. However, operating costs, including quota costs and fuel, have become more significant. Fuel prices have risen sharply and now represent up to 50 % of the boat costs. The whitefish fleet is particularly vulnerable to the cost of fuel because of the fuel required to tow gear over the seabed. Modern boats are more fuel efficient due to improved hull, engine and gearbox design. Investment in new boats or improvements to existing boats is a problem as it is difficult to source loans and funding. There is concern that this will lead to an aging fleet of vessels.

Landings

Scalloway is Scotland’s ninth-largest landings port, with 19 % of all Shetland whitefish landings made to Scalloway. Total whitefish landings into Scalloway in 2011 were 2,600 tonnes. The whitefish landed
volume in Shetland in 2011 was 13,838 tonnes. In Scalloway total landed volumes peaked in 2008 at 3,228 tonnes and have since been declining. However, landings are higher than pre-2008 levels. The landed volume of haddock and whiting has declined since 2008, while the landed volumes of cod and megrims have increased. The landed volume of anglerfish has declined since 2008. Landed volumes are shown in Figure 3.

![Figure 3 Whitefish (demersal) landings into Scalloway from 2003-11](image)

Demersal landed value in Scalloway in 2011 was GBP 4.24 million (EUR 4.92 million), 16% of the total Shetland landed value of GBP 26.1 million (EUR 30.3 million). Scalloway demersal landings accounted for 2% of all whitefish landed in the UK by UK vessels and 3% of landings made by Scottish vessels in the UK.

Total landed value decreased in 2011, with landed value peaking in 2008. Cod is now the most valuable species landed in Scalloway, followed by haddock and anglerfish. Landed values are shown in Figure 4.
Figure 4 Whitefish (demersal) landed value into Scalloway from 2003-11

Price at first sale has shown a steady increase from 2002-11 for all major species, see Figure 5. Megrims and haddock have shown the largest increase in landed price.

Figure 5 Whitefish (demersal) landed price into Shetland from 2003-11

Fleet

The whitefish fleet has fluctuated between three and six boats in recent years. There are five whitefish vessels based in Scalloway at the moment. Fluctuations in fleet size are likely to reflect alterations in the registered port, rather than actual changes in the overall Shetland fleet composition.

Ownership and remuneration

Shetland whitefish boats are owned by a number of shareholding crew. The skipper is normally one of the shareholders. The proportion of non-shareholding to shareholder varies from boat to boat. Grants
and interest-free loans have previously been available to help younger crew members become shareholders. These loans are no longer available, making it more difficult for younger crew members to become shareholders.

All Shetland crew members within the Scalloway whitefish fleet are paid on a share basis. This means that income is dependent on the success of the fishing trip and will vary for each trip.

All reported remuneration included any additional income from being a shareholder in the boat. Note within the whitefish fleet the phase shareholder does not always infer the boat is a limited company, rather the fishermen jointly own the boat.

**Market**
The price for Shetland demersal species has been increasing in recent years. It is estimated that 90% of fish landed into Shetland is sold through Shetland Seafood Auctions, which was established in 2003. By establishing a local auction, which is independently inspected by Shetland Seafood Quality Control (SSQC) Ltd., Shetland has been able to develop a reputation for high-quality seafood. This has increased the price that can be gained for fish landed and the fishing vessels have increased landing frequency (normally twice per trip) to ensure landed fish is as fresh as possible.

While Shetland Seafood Auctions and product quality has helped to increase prices, the maximum price is also dependent upon supply. With the fleet now fishing closer inshore due to changes in quota and days at sea, vessels are targeting similar fish. This has the potential to reduce the diversity of fish landed and cause an oversupply of some species. In addition, fish price is vulnerable to landings elsewhere in Europe and fishers report that high landings in other areas such as Ireland can reduce the price obtained in Shetland.

**Employees within segment**
Most crew members have accident and sickness insurance, regardless of their role within the vessel. This does not extend to their spouses or partners. Many respondents chose not to reveal their wage brackets but those who did respond reported wages from GBP 30,000-50,000 (EUR 36,600-61,000) and there were too few respondents to determine average wages per crew type.

Crew entering the fishery have to undertake basic training, including sea survival and firefighting; this training can be undertaken at the North Atlantic Fisheries College (NAFC) Marine Centre. Further training is required to gain engineering and skipper positions. Crew are normally employed on reputation and/or recommendation. All of the fishers interviewed in Scalloway joined the fishing industry at age 16 after completing secondary education and so had not undertaken any higher education. The skills and qualifications gained in the fishing fleet are transferable to the aquaculture industry, the merchant navy and the local ferry service, but all respondents indicated that they did not wish to change profession.

The boat crew showed low job mobility. Most crew members have been with the same boats for more than ten years, with the exception of young crew members who had been with the boats since leaving school but were too young to have been on the boat for ten years.
Crew are paid as a share of the catch, any change in profitability of the sector therefore directly affects the income of the crew. Increased costs (such as fuel, quota) and reduction in earning potential (through reduction in days at sea) reduce the potential income of the fleet. Fishers reported that these challenges were reducing the profitability of the sector. In Lerwick a number of boats have now taken on foreign crew, whereas in Scalloway no non-EU crew were recorded. Skippers reported that they were reluctant to take on new young crew members to the boat in case they could not afford to keep paying them.

**Representation**

Fishers reported that they felt the socio-economic importance of fishing was recognised locally, however, they felt that at both the Scottish level and EU level there is little understanding of, or consideration given to, the impact of changing regulations on fishing-dependent communities. The annual changes in EU policy were mentioned as making it particularly difficult to plan ahead for the future and their preference would be for regulations to remain in place for five years at a time to enable them to make more informed decisions about the future. Fishers were also concerned about the long term viability of their boats due to the cost of renting quota, the costs of upgrading vessels and rising fuel costs. They fear that the limited quota with the new by-catch rules could make operations even more difficult.

They were also concerned that the number of SIC councillors who have a fishing background has declined, which might reduce understanding of the fishing industry locally.

Fishers and community representatives voiced distrust that their views or opinions are considered by the EU. In addition, they expressed concern that participation in EU studies may result in information being used to the detriment of the community and the fleet. Concern was also raised that celebrity-led publicity campaigns have the potential to give misleading information about the fishing industry, and that these campaigns were being given greater weight than the views of the fishers.

**Spouse involvement**

The fishing vessels are crewed by men and there are is no spouse involvement with the vessels.

**Summary**

The whitefish fleet has adapted to external pressures by trying to improve the quality of the fish they have landed to increase the price obtained for the fish. The fleet has also made changes to fishing patterns: increasing the frequency of landings, fishing at closer grounds and increasingly targeting shoaling fish.

Fishers report that fish abundance is the highest in living memory, but they felt that fisheries science is not recognising these changes in stock levels. The fleet faces challenges in financing the modernisation of the fleet, to ensure that vessels are economical and efficient to run.

Uncertainty generated by quota and reductions in days at sea will create continued economic uncertainties for the fleet and may discourage young people from joining the fleet.
2.4.2 Shellfish fleet

Fleet segment as a whole
Due to the small size of the shellfish fleet (vessels are less than 24 m), they are normally operated single-handedly by the vessel owners. Fishers require a local Scottish Pelagic Fishermen’s Association (SPFA) Shetland Shellfish Management Organisation (SSMO) licence to operate a shellfish boat.

Of those surveyed, some worked full time and some worked part time. Shellfish fishing is more weather dependent due to the small boat size and the risk of losing static gear. However, fishing takes place throughout the year.

All fishers interviewed lived in Scalloway and all had been, or are additionally employed, in one of the other fish-catching sectors. All fishers surveyed were more than 41 years old, Figure 6.

Figure 6 Age, gender and place of origin for crew types in Scalloway

Economics
All those surveyed paid themselves on the operating surplus. Of those who reported an operating profit, all part-time fishers reported an income of less than GBP 15,000 (EUR 18,300) and full-time owners reported an operating profit of GBP 30,000-50,000 (EUR 34,800-58,000). One shellfish boat in Scalloway is owned by the NAFC Marine Centre. It is used for shellfish research and the crew are employed permanently and salaried. Their wage was not disclosed. Several fishers reported that their largest cost was paying off the loan for the vessel.

Landings into Scalloway in 2011 were 27 tonnes, which represents 1.7% of the total Shetland landings. The shellfish landed volume in Shetland in 2011 was 1,565 tonnes, accounting for 1% of landings by UK vessels into the UK and 3% of all Scottish landings into the UK. In Scalloway landed volumes have decreased since 2008, primarily driven by a fall in scallop landings, see Figure 7. This may in part reflect a change in port usage.
Figure 7 Shellfish landed volume Scalloway from 2003-11

Shellfish landings in Scalloway were valued at GBP 0.05 million (EUR 0.058 million). Velvet crabs currently account for high the highest landed value, although, as for landed volumes, there is a large year-to-year fluctuation, see Figure 8.

Figure 8 Shellfish landed value Scalloway from 2003-11

The price at first sale of velvet crabs and lobsters increased in 2011. The price at first sale of edible crabs has remained relatively constant. The price at first sale of scallops has been decreasing since 2006.
There are currently 23 shellfish boats in Scalloway. There has been a slow decline in the number of registered boats. This may in part reflect the granting of licences in 2003 by the SSMO, and boats not fishing commercially have since left the fleet.

As for all fleet segments, increasing fuel costs have reduced the profitability of the fleet. Fishers reported that the cost of entering the fleet (boat cost) and the difficulty of obtaining a local licence restricted new entrants into the fleet.

The fleet has recently gained Marine Stewardship Council (MSC) certification for king and queen scallops, and brown and velvet crabs. The dredge fishery gained accreditation after the fleet agreed voluntary closed areas, developed in consultation with the fishers.
Employees within segment
None of the fishers interviewed had accident or life insurance associated with their vessel, insurance cover was through other boats. A number of the fishers interviewed worked in other fleet segments, and for them fishing for shellfish was secondary employment. It should be noted that there are full-time fishers within this fleet segment but they did not participate in this study.

All fishers interviewed had more qualifications than required to skipper their vessels and all were qualified to skipper or crew larger vessels.

The fleet is represented through the Shetland Fishermen’s Association (SFA). As the fleet is not quota led, representation at an EU level is less relevant to the fleet. The fishers reported that they felt they had been poorly represented in recent UK media reports.

Summary
The fishing fleet comprises small vessels, which are predominantly part time. Shellfish fishing is managed by the SSMO. The fleet has recently gained MSC certification, which may increase the prices the fleet can command.

2.5 Summary of settings
Fishing remains a key industry within Scalloway. Entry into all fish segments has become more difficult with the cost of entry high and difficulties of obtaining licences and quota due to increased legislation. It has become increasingly difficult for young people to join the fishing sector.

Fishers report a high level of job satisfaction but report that legislation has made it difficult for the fisheries to operate effectively.
Table 2  Summary of fishing fleets in Scalloway

<table>
<thead>
<tr>
<th></th>
<th>Demersal fleet (whitefish)</th>
<th>Shellfish fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Target species status</strong></td>
<td>85% maximum sustainable yield (MSY)</td>
<td>Stocks stable</td>
</tr>
<tr>
<td><strong>Business type</strong></td>
<td>Shareholding crew</td>
<td>Owner crewed</td>
</tr>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average annual income</strong></td>
<td>GBP 30,000-50,000</td>
<td>GBP 10,000-15,000 part time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GBP 30,000-50,000 full time</td>
</tr>
<tr>
<td><strong>Main education level</strong></td>
<td>School education until 16. Fishing qualifications up to class 2</td>
<td>School education until 16. Fishing qualifications up to class 2</td>
</tr>
<tr>
<td><strong>Highlights</strong></td>
<td>85% of Scottish stocks considered to be at MSY. Many stocks increasing. Fishers reporting large numbers of fish</td>
<td>Locally managed. Recently gained MSC certification for key species</td>
</tr>
<tr>
<td></td>
<td>Shetland catch considered to be of a high quality. Shetland Seafood Auctions has helped to increase landed price</td>
<td></td>
</tr>
<tr>
<td><strong>Key points</strong></td>
<td>Management measures (days at sea / quota) creating difficulties for the fleet</td>
<td>Difficult to gain new licence. Vessels normally operated single-handedly</td>
</tr>
<tr>
<td></td>
<td>Fuel costs and quota costs reducing profitability</td>
<td></td>
</tr>
</tbody>
</table>

3  Linkages

3.1  Inter-sectoral linkages

**Geographical**

Within Scalloway fishing is a key marine industry. However, the fishing fleets have the potential to overlap spatially with other industries. For the inshore fishing fleet, cables, pipelines, aquaculture installations, and proposed renewable devices can have impacts on the inshore fishing fleet. For the offshore fleet, renewables, cables and pipelines, and oil-related infrastructure (oil rigs, etc.) have the potential to compete for space. Natural heritage designations might reduce fishing opportunity in the future, through management measures such as restrictions imposed on gear types.

**Labour**

Competition for labour between marine sectors is not perceived as high. However, due to difficulties young people have encountered in entering the fleets, some wishing to pursue a marine career have chosen to enter the merchant navy. Nevertheless, the skills they gain doing this would also allow them to enter the fishing fleet at a later date.
Starting income in the fishing industry is relatively low until qualifications are obtained and trainees have to pay their own training costs and support themselves while in college. In contrast, training for the merchant navy is paid for by the employer. Within Shetland financial support is available to young fishers through the Hunter and Morrison Trust and the Shetland Fisheries Training Council (STFC) and a new apprenticeship scheme has also been launched this year, with a number of whitefish vessels intending to take on an apprentice.

**Economic**

The Shetland fishing fleet uses more than 300 local and national suppliers. The Scalloway and Shetland fishing vessels also directly support onshore jobs within Scalloway and Shetland in transport, processing, sales, engineering and supply. A survey of companies conducted as part of this study indicated that at least 225 onshore jobs in sectors such fish processing, transport and engineering are directly dependent on fishing across Shetland. At least ten companies in Scalloway are dependent on the fishing industry, directly supporting more than 60 jobs. Some of these businesses are solely dependent on fishing (such as fish-processing companies); while for others it represents a proportion of their income. Many of these businesses have already had to adapt to the reduction in the number of fishing vessels in Shetland and have increased reliance on other marine industries such as aquaculture and oil. While many of these companies would be able to continue to trade if the fishing industry were to close, it would be likely that staff whose jobs are directly dependent on fishing would be made redundant. In addition, the income of the fishers and onshore workers will indirectly help to support jobs across Shetland.

Wild and farmed fish and shellfish comprise Shetland's largest export and these industries help support Shetland's ferry link to the mainland and the inter-island ferry services.

### 3.2 Intra-sectoral linkages

**Institutions**

The SFA represents all fleet segments within Shetland and organises meetings for each fleet segment to ensure they are all represented. The SFA, as a member of the Scottish Fishermen's Federation (SFF), represents the interests of fishers nationally and internationally. All fishers reported that the SFA was representing their fleets. The SFA does not provide assistance in times of hardship and the fishers reported that none was required.

Within Shetland the SSMO manages the inshore shellfishery. The SSMO has representatives from the SFA, SIC, Association of Community Councils and the fish-processing industry.

Fishers reported that they were not reliant upon state or voluntary aid and this was not rated as important to them. As fishers work all year round, there is not a need for organisations to provide financial aid for times of hardship. The Hunter and Morrison Trust and the SFTC have been able to offer financial assistance to fishers to help them gain the required qualifications. The Fishermen’s Mission is a national charity that can assist fishers and their families in times of hardship and bereavement.


3.2.1 Between fleet segments

Geographical
Fishers reported that there was no major conflict for space within the Shetland fishing sectors. However, the demersal fleet reported that they had increasing conflicts with other nations’ vessels, especially with Spanish gillnetters (targeting monkfish). Gillnets are left in place for a number of days at a time and this presents a hazard to trawlers. They reported that gillnets were being used in increasingly shallow depths. Fishers felt that foreign vessels were not as tightly controlled and regulated as the Scottish vessels.

Labour
Labour mobility appears to be low in the Shetland fishing fleets, with fishers staying with the same vessels for a number of years. As many fishers are shareholders in the boats that they work on, there is little incentive to move boat.

Economic
As the whitefish fleet lands into main ports, vessels do not need to co-operate on landings and are economically independent of each other. Whitefish boats are able to obtain quota from a number of sources: they can purchase or rent quota from other fishing vessels, the SIC, L.H.D. Limited (fish agents) and the Shetland Fish Producers’ Organisation (SFPO). SIC rents quota at market prices and makes GBP 0.8-1.0 million (EUR 0.98-1.22 million) a year from rental. LHD and SFPO are able to purchase and rent quota to benefit the local fleet, and unlike the SIC they are not affected by State Aid legislation so do not have to offer the quota to vessels outside of their memberships, nor do they have to ensure that the rental rates are at full market value.

The shellfish segment is not managed by a quota system.

3.2.2 Between subsectors

Geographical
There is limited spatial overlap between subsectors. While shellfish dredging grounds and whitefish trawling grounds may overlap, fishers reported that this did not cause any conflicts between the fleets. Fishers suggested that this was because the fishing grounds were quite large and fishing intensity relatively low.

The location of ancillary industries such as fish processing has contracted in recent years. Fish processing now takes place primarily in Lerwick and Scalloway. Historically, there were a number of fish-processing factories spread across Shetland. The centralisation of services has meant that many jobs created by ancillary industries are less dispersed geographically and are often in different communities to those of fishers and boats.

Labour
None of the fishers reported that their spouses or partners were involved in the fishing industry. Historically, when larger quantities of fish were landed locally, fish was also processed in Scalloway and at that time, spouse or partner involvement would have been more likely.
It is likely that the 225 onshore jobs will be predominantly held by separate households, as little evidence was found of more than one household member working in a fishing-dependent industry.

**Economic**

Seafood from Shetland is primarily sold unprocessed to Scottish mainland distributors. Whitefish is sold via Shetland Seafood Auctions, with buyers bidding on the fish. Shellfish is sold predominantly straight to mainland buyers. However, brown crab is processed in Yell and some fishers will sell a proportion of their catch to the factory. The price fishers receive is dependent on the national availability of fish, with over supply lowering prices and under supply raising prices.

The different fleet segments are not competing in the same markets, so the landed volume of one sector does not affect the landed price in other sectors. In Scalloway and across Shetland the aquaculture industry produces significant volumes of salmon and mussels, but these are not fish that are caught by the wild fishery in Shetland, so there is little market competition.

### 3.3 Summary of linkages

The Scalloway fishing fleets support a large number of onshore jobs. These jobs are in marine engineering, transport, processing and boat supply. There are more than 10 fishing-dependent businesses within Scalloway. There is no evidence that these are in the same households as fishers. As Shetland's largest exporter, the fishing fleet also helps to support key infrastructure, including the ferry service.

No negative interactions were reported between the Shetland fleet segments due to differences in markets and fishing grounds.

### 4. Role of fishing

#### 4.1 Fisheries as an economic activity

The whitefish fishers reported that their income represented a high proportion of household income (normally more than 50 %). Shellfish fishers surveyed reported that shellfish fishing represented less than 30 % of household income for part-time fishers and more than 50 % for full-time fishers.

Fishing has provided long-term well-paid employment for fishers. Fishers report that they have a high level of job satisfaction. Within Scalloway there are a number of other employers, including aquaculture, engineering, fish processing and tourism and Oil survey vessels also use the port. Scalloway is also within easy commuting distance of Lerwick (7 km to the east) and Sullom Voe (40 km to the north).

While at the Shetland level 3 % of the workforce is dependent on fish catching, this ignores the additional jobs created in ancillary industries. In total, 9 % of the Shetland workforce is directly employed in fish catching, fish processing and aquaculture. In Scalloway this is likely to be higher, as
aquaculture processing takes place here. However, it should be noted a higher proportion of the Scalloway population will commute to Lerwick for work.

![Figure 11 Proportion of the population employed in fish catching and the entire fish sector in Shetland from 1997-2011](image)

All fishers surveyed reported a high level of job satisfaction (although this was not as high for some fishers in the demersal fleet reported by EU regulation). All fishers reported that they wished to stay working in the sector and did not intend to leave within the next 12 months. No fishers reported that they were or had previously been looking for alternative employment.

Any reduction in fleet size would require fishers to seek employment elsewhere in Shetland. The Scalloway and Shetland fleets show low mobility, and employment levels have been stable in recent years, following a period of fleet reduction, particularly within the whitefish fleet.

The shellfish fleet are operated single-handedly, so do not recruit crew. Fishers in the whitefish fleet report that they are reluctant to recruit new young crew in case they cannot afford to keep the individual employed.

![Figure 12 Length of time in fishing industry, fishers in Scalloway](image)
4.2 Adaptation

4.2.1 Analysis of adaptive response

**Whitefish fleet**
Fishers expressed concern that it was hard to adapt to future change as many of the challenges facing the fleet were beyond their control. Many fishers wished to make additional investments in the fleet, in terms of upgrading or replacing vessels, but availability of loans and uncertainty created by governance measures reduced investment certainty. Cost of purchasing quota and the cost of purchasing new boats reduce the likelihood that the whitefish fleet in Scalloway will expand.

Fishers reported that fishing regulations (quota and days at sea) reduce their ability to adapt to future changes in fish abundance. As whitefish is a quota-controlled fishery, it is difficult for fishers to take advantage of changes in stock abundance. Fishers reported that they were seeing high stock abundances but were not able to utilise increased stock as the biological data collected did not reflect the changes in stock. A reduction in allowed days at sea has also reduced fishers' ability to benefit from changes in stock abundance and fishers report that this has reduced total landings. Nevertheless, fishers can rent quota or trade their quotas, which allows them to adapt to some changes in abundance or markets.

Wider declines in the economy have made it more difficult to access loans from banks and there has been a reduction in the level of financial support that can be offered at a national level. None of the fishers surveyed wished to leave the whitefish fleet, but fishers reported that regulation was making it increasingly difficult to maintain an economically viable fishery. There are no alternative employment opportunities in Scalloway that could employ the whole fishing fleet, but fishers would be qualified to work in the aquaculture industry and in the offshore industries. A number of shellfish fishers previously worked in the whitefish fleet but had to change fleets during decommissioning.

Many Shetland boats have been working for the oil industry on 'guard duty' while new pipes are being laid to gain additional income.

Fishers reported that the uncertainty created by fisheries regulation also made them unwilling to take on young fishers in case they could not afford to keep them employed. The NAFC Marine Centre in Scalloway is now offering a modern apprenticeship for young fishers wishing to join the industry.

Economic challenges such as increased fuel prices affect all crew members as fishers are paid on a share basis. Reduction in profitability has the potential to affect new fishers more because skippers will be less willing to take on new crew members.

**Shellfish**
The shellfish industry is not controlled by quota, so can adapt more easily to changes in stock abundance and the regular, local monitoring of stock abundance means there is greater confidence in stock assessment.
Fishers report that currently it is very difficult for the sector to grow as the SSMO is not issuing new licences to fishers making it harder for new entrants to join the fleet. As most vessels are operated by only one crew member, unless a family member already owns a shellfish boat it may be difficult for a young person to gain shellfish fishing experience. Wider declines in the economy have made it more difficult to access loans from banks and there has been a reduction in the level of financial support that can be offered at a national level.

Economic challenges such as increased fuel prices affect the profitability of the sector. Most fishers are not solely reliant on an income from shellfish fishing. Reduction in profitability has the potential to affect new fishers more because skippers will be less willing to take on new crew members. MSC certification may help fishers achieve a higher price and help to maintain profitability.

4.3 Future development of the community
Fishers reported that uncertainty created by external regulation makes it difficult for the fleet to prepare for the future and to invest and upgrade boats. While work for the industry through guard duty is currently providing supplementary income for many whitefish boats, this work is transient, reliant upon the laying of new pipelines.

Community representatives and fishers are concerned that any further reduction in fishery employment would affect onshore jobs. Onshore businesses have adapted to the reduction in the fishing fleet by diversifying into aquaculture and the oil service. There is a proposed wave farm in the Scalloway area, which may provide future employment locally. Most fishers placed a high value on education for young people, to enable them to adapt to future changes in the economy.

Marine-related industries remain the largest local employer within Scalloway, however, as Scalloway is within easier commuting distance of Lerwick, many people commute to Lerwick for work.

The NAFC Marine Centre in Scalloway was set up to support the fisheries sectors in Shetland, to support fisheries research, including training, aquaculture diversification and local management of marine resources. The NAFC Marine Centre is a large employer in Scalloway, although staff members live across Shetland.

A new funding scheme has been made available since 2012 for coastal communities through the European Fisheries fund, Axis 4. There have been one grants awarded for the Scalloway area.

5. Summary and conclusions
Scalloway is Shetland’s second-largest settlement with a population of around 812 people (3.6 % of population of Shetland). The proportion of residents in Scalloway originating outside the EU is estimated at less than 1% of the total population. In 2009 the average yearly wage in Scalloway was lower than the Shetland average at GBP 29,297 (EUR 33,985) compared to the Shetland average of GBP 30,180 (EUR 35,008).
Scalloway is home to approximately 20% of the Shetland whitefish fleet, which also lands into Lerwick and Cullivoe. In Scalloway fisheries-related employment is likely to be much higher percentage of FTE jobs, with 34 jobs in wild-fish processing, as well as aquaculture farming and processing. Fish catching is estimated at 35 FTE jobs.

The Scalloway-based fleet comprises two main fisheries: inshore shellfish (creel and scallop dredge) (84%) and demersal (16%), Table 1. This differs to fleets based in the rest of Shetland, which comprise inshore shellfish (82%) demersal (13%) and pelagic (5%) fisheries. There are no Scalloway-owned pelagic boats and pelagic boats do not normally land into Scalloway. Nationally, the Scottish fleet comprises inshore shellfish (88%), demersal (11%) and pelagic (1%).

The Scalloway whitefish fleet has reduced in size in recent years due to decommissioning. However, it still represents 21% of the Shetland fleet and 2.1% of the Scottish fleet. All boats are still locally owned (rather than by external companies). Working patterns have changed due to the reduction in days at sea, which now means that some boats can only fish 120 days per year. Working patterns differ between vessels. Most boats work between one week and two weeks at sea, followed by between one and two weeks at home. Some boats work a rotating crew system: for example, five on board and four ashore. All crew are local males, from 41 to 65 years of age. Most crew members have accident and sickness insurance, regardless of their role within the vessel. Many respondents chose not to reveal their wage brackets, but those who did respond reported wages from GBP 30,000-50,000 (EUR 36,600-61,000). All fishers interviewed had secondary education but had not undertaken higher education, most leaving to join the fishing industry at 16. Most crew had been with the same boat for at least ten years.

The Scalloway shellfish fleet comprises mostly single-handed, small (less than 24 m) vessels. There are currently 23 shellfish boats in Scalloway. Of those surveyed, some worked full time and some worked part time shellfish fishing. Shellfish fishing is more weather dependent due to the small boat size and the risk of losing static gear. However, fishing takes place all year round. All crew surveyed were local, male and over 41 years of age. Of those who reported an operating profit, all part-time fishers reported an income of less than GBP 15,000 (EUR 18,300) and full-time owners reported an operating profit of GBP 30,000-50,000 (EUR 34,800-58,000). The fleet has recently gained MSC certification, which may increase the prices the fleet can command.

Fishing remains the career of choice for many in Scalloway, despite the lure of often better-paid and easier jobs in the key employment sectors such as SIC. Within Shetland as a whole, financial support is available to young fishers through the Hunter and Morrison Trust and the Shetland Fisheries Training Trust. A new apprenticeship scheme has also been launched recently.

However, wider declines in the economy have made it more difficult to access loans from banks and there has been a reduction in the level of financial support that can be offered at a national level.

None of the fishers surveyed wished to leave the whitefish fleet, but fishers reported that regulation was making it increasingly difficult to maintain an economically viable fishery. Fishers reported that the
uncertainty created by fisheries regulation also made them unwilling to take on young fishers in case they could not afford to keep them employed.

At present there are no data collection framework (DCF) variables associated with social dimensions, apart from some information on employment (FTE employment and the number of engaged crew). It is apparent that there is a high dependency on fishing-derived employment and thus the community is highly vulnerable to external factors like changes in quota allocation, fuel costs and market prices. Many of these are captured in the current DCF regime (for example, under expenditure) but the vulnerability element is not currently captured nor fully understood by many. Therefore, it is suggested that key indicators are identified and included where possible in a new socio-economic dimension of the DCF. These could include:

- entrance and departure rates of persons involved in fishing;
- ratios of fisheries dependence in the local economy, in terms of both employment and economic contribution;
- relative contribution of Member State / other EU and non-EU employment within the local fisheries sector.