QUAY ISSUES

EXPLORING THE STORIES BEHIND THE DATA: A LOOK AT THE SEAFISH FLEET SURVEY 2014

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January 2015
Seafish Report No SR675
ISBN No 978-1-906634-81-0

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A Letter from the Editor

From Shetland to Penzance, covering every port in the UK, every year Seafish employs a team of researchers to carry out our economic survey of the UK fishing fleet. Over the course of the summer these researchers try and speak to as many vessel owners as possible, gathering data on costs and earnings as well as discussing people's expectations and ambitions for the future.

This year we spoke to a record number of fishers with nearly 600 individual interviews taking place. An operation of this size is certainly a challenge but it is also a unique opportunity for Seafish to speak face to face with those we represent and to share their views on our industry.

The end result of previous surveys has been our Key Features report and multi-annual dataset. These documents are intended to help industry and policy makers better understand the socio-economic consequences of changes in fisheries management measures and the wider financial climate and they will continue to do so. However, the interviews unearth far more than these reports could possibly hold.

Our researchers hear hundreds of individual stories, many of them about the challenges facing our industry. The climate remains tough but our industry continues to face these challenges head on. Quay Issues has been produced to shine a spotlight on some of the innovative approaches taken to the business of fishing and to share these ideas with fishing business owners around the country as well as the rest of the world. We hope you find these examples interesting and possibly even inspiring.

I would like to take this opportunity to thank everyone who took time out of their busy schedules to speak to us. Whether it was a brief chat on the quayside or an in-depth interview, the importance of your participation cannot be overstated. I would also like to thank all the individuals featured in the case studies and all the Seafish staff who contributed their time and expertise. Finally I would like to thank you – our readers. This is our first attempt at producing a report in this style and we would be delighted to hear any feedback or ideas for future publications. Please feel free to contact us via any of the means listed on the back of this magazine.

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A Costly Business

Fishermen across the country may be familiar with the phrase "a fishing boat is a floating hole in the ocean into which you throw your money."

Certainly fishing can be a costly profession, and has become more expensive over the years. Balancing costs and profits is therefore at the forefront of every vessel owners mind and to a large extent governs their business decisions. Skippers across the country described rising costs as a major factor limiting their fishing businesses. Costs vary hugely between fishing businesses and are determined mainly by fishing methods, vessel type and area. Skippers who took part in our survey described various costs which are a cause for concern and limit their financial performance. While some of the costs described are limited to particular fishing sectors, some are common across many businesses and throughout the country. In this section we explore some of the main costs identified by skippers during the survey.

"The cost of overheads has been increasing year on year; however this increase isn't reflected in the value of the catch. This means that everyone feels they have to catch more to cover costs, flooding the market and leading to even lower prices, it's a vicious cycle."

- **Fuel -** Regardless of vessel type or location, fuel was mentioned time and again by skippers. The price of fuel has been rising for a number of years and many of the skippers who took part in this year's survey listed fuel as a major factor affecting their business. Rising fuel prices are particularly problematic for vessels that have to steam further to reach fishing grounds as a result of increasing competition, stock fluctuations or quota availability.

- **Gear -** A common limiting factor, especially amongst the static sector is the cost of gear. Spending on gear varies significantly year to year and last winter's prolonged and violent storms caused unprecedented gear loss throughout the country, especially in the south west. As one Cornish potter explained "I couldn't get out to bring in my pots because the sea was too rough, it would be too dangerous in such a small vessel. I had to leave my gear in the water and just hope. As time went on I knew I'd lose thousands of pounds of worth of gear." While some loss was mitigated through compensation under the hardship fund, some fishermen told us they were waiting over six months for reimbursement, additionally reimbursement only covers lost gear and not lost time as well so many found themselves significantly out of pocket.

- **Gear -** Significant gear loss or damage can also occur in areas where there is fierce competition both within and between fishing sectors. Over the years, these fierce battles have caused losses on both sides; it's not surprising then that this was commonly mentioned as a major limiting factor especially by fishermen in the west of Scotland, where competition is particularly tough and has been the cause of ongoing conflict.

- **Bait -** Another common cause for concern, especially amongst the static sector is the rising cost of bait. While it may account for only a small proportion of annual turnover, average spending on bait has increased markedly in recent years. This is in part due to increasing price but also a result of many static gear fishermen putting out more pots to compensate for low shellfish prices. One west coast creeler explained to us that "The price of bait has more than doubled in 10 years, while the value of crab has only increased 5-10p per kg in the same time". Many skippers are also as yet unsure of how the discard ban will affect bait prices in the near future.

- **Quota -** Many skippers, especially in the whitefish sector, identified the cost of leasing quota as a major limit to their financial performance. One North Sea trawler skipper told us that "Quota leasing costs are sometimes greater than the value of catch, meaning we can return from a fishing trip barely breaking even." Many skippers are also worried about the effect that the discards ban will have on quota availability and leasing costs.

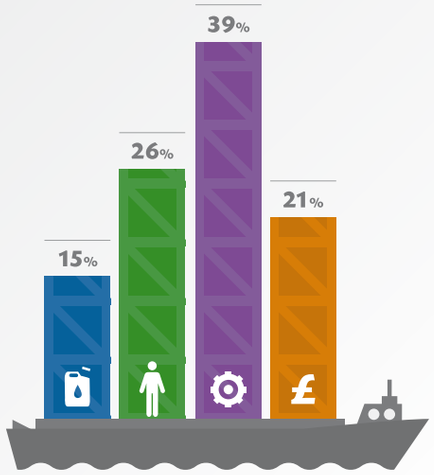
- **Crew -** Despite being a major cost few skippers mentioned crew wages as a limiting factor. Some business owners that wanted to expand felt constricted by the cost of hiring further crew, as one skipper from Wales explained "I need to take on another member of crew because it's difficult to do it alone, but I'm worried I won't be able to pay them". While some described local skills shortages and difficulty securing visas for overseas workers, paying crew is accepted as a necessary cost.

- **Repairs -** Few skippers described the cost of repairs as an issue and generally accept that vessel maintenance and repairs, while costly are an essential investment. Many did however describe lost fishing time while tied up doing repairs as a significant problem causing loss of income, as one skipper from Northern Ireland said "There is a financial and a time cost involved in repairs, time spent doing repairs means less time out fishing and old boats need constant maintenance."

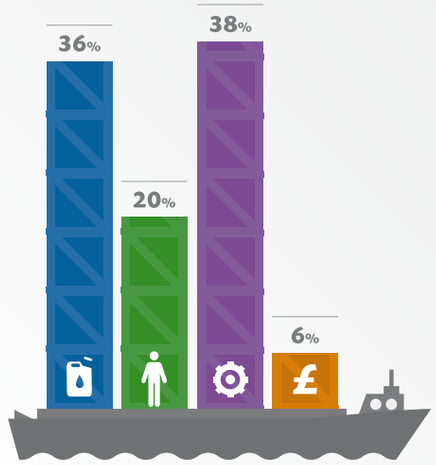
AVERAGE UK FISHING VESSEL COSTS AND PROFIT 2012

AS A PROPORTION OF TURNOVER

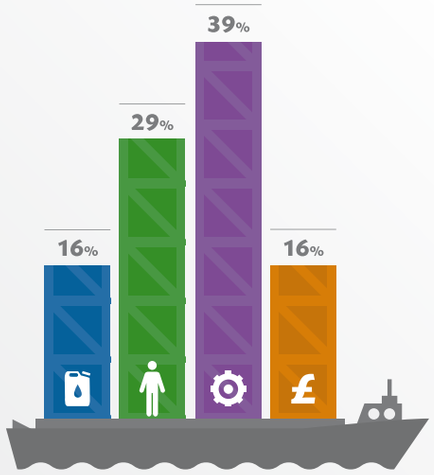
Source: Seafish, fleet economic performance datasets 2005-2013



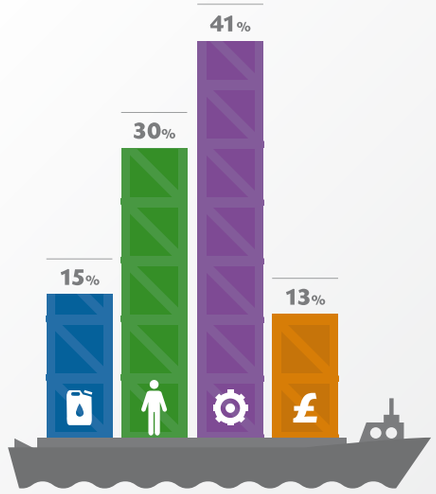
UNDER 10M STATIC
TURNOVER: £50,550



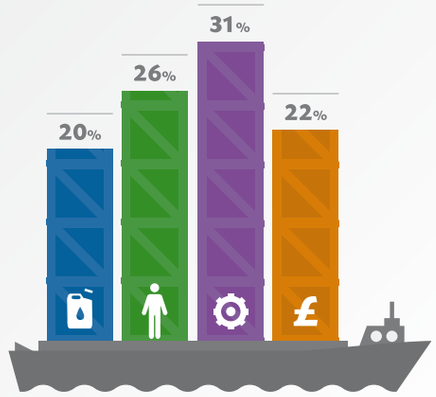
BEAM TRAWL
TURNOVER: £623,218



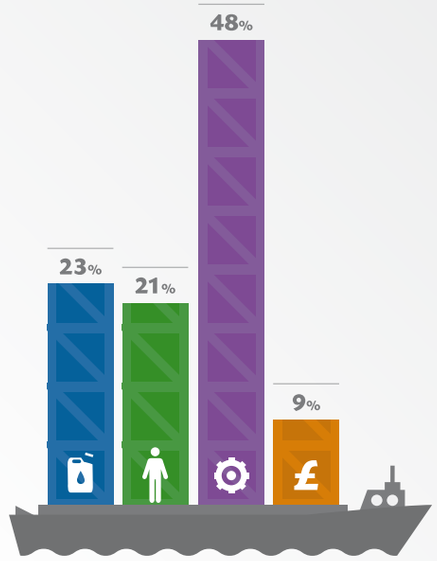
UNDER 10M MOBILE
TURNOVER: £69,388



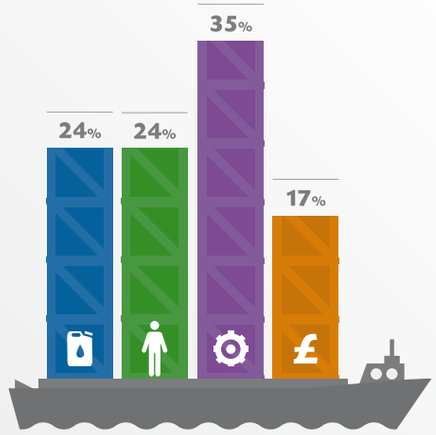
OVER 10M STATIC
TURNOVER: £250,351



SCALLOP DREDGE
TURNOVER: £288,314



DEMERSAL TRAWL
TURNOVER: £786,616



NEPHROPS TRAWL
TURNOVER: £279,839

FUEL

CREW

OTHER EXPENDITURE

PROFIT

Other Expenditure includes all other fishing costs (e.g. ice, harbour dues and quota leasing) and vessel costs (e.g. gear, repairs and insurance).

Under 10m Static: Under 10m drift and/or fixed nets / Under 10m pots and traps / Under 10m using hooks

Beam Trawl: North Sea beam trawl over 300kW/ North Sea beam trawl under 300kW/ South West beamers over 250kW/ South West beamers under 250kW

Under 10m Mobile: Under 10m demersal trawl/seine

Over 10m Static: Gill netters / Longliners / Pots and traps 10-12m / Pots and traps over 12m

Scallop Dredge: UK scallop dredge over 15m / UK scallop dredge under 15m

Demersal Trawl (Over 10m): Area VIIA demersal trawl / Area VIIb-k trawlers 10-24m / Area VIIb-k trawlers 24-40m / NSWOS demersal over 24m / NSWOS demersal pair trawl seine / NSWOS demersal seiners / NSWOS demersal under 24m over 300kW / NSWOS demersal under 24m under 300kW

Nephrops Trawl: Area VIIA nephrops over 250kW / Area VIIA nephrops under 250kW / North Sea nephrops over 300kW / North Sea nephrops under 300kW / WOS nephrops over 250kW / WOS nephrops under 250kW

Fuelling the Fleet

"Fishing is the most energy intensive food-production system." FAO Fuel and financial savings for operators of small fishing vessels - 1999

Recent developments in the field of engineering are seeking alternatives to combustion engines and reducing dependency on fossil fuels. However, for the time being the fishing industry is still dependent on oil and therefore at the mercy of global fuel prices.

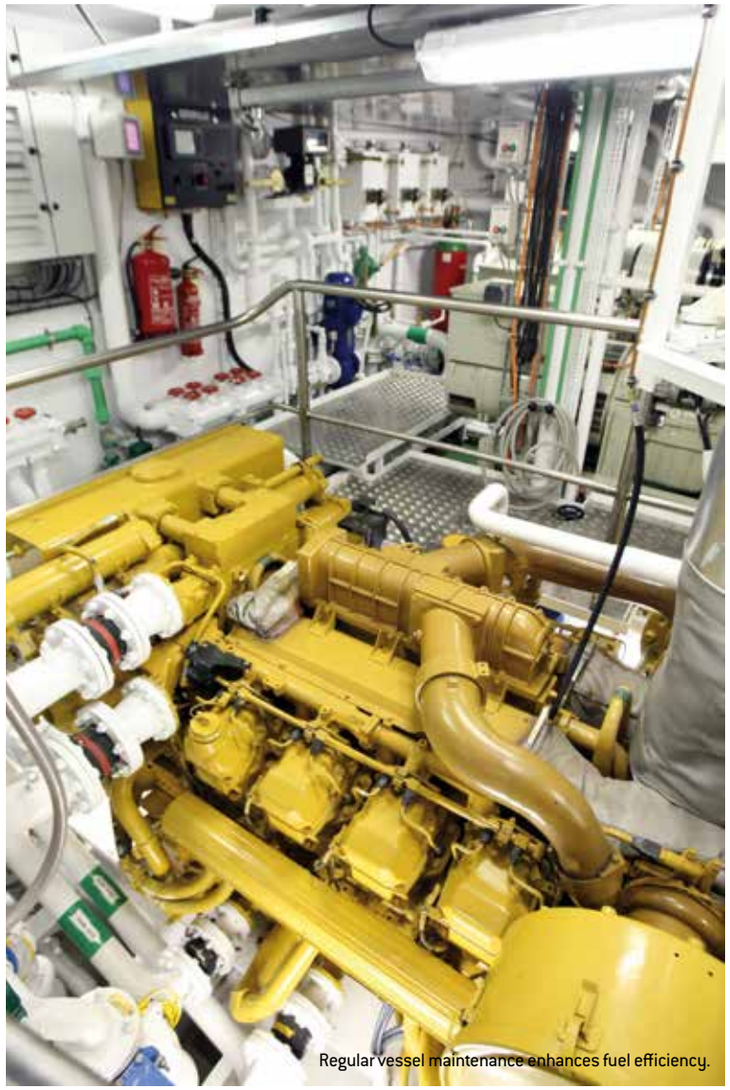
Fuel is often the single largest expenditure for fishing businesses. Spending on fuel varies largely between individual vessels, our 2012 estimates of average annual fuel expenditure ranged from around £3,000 to nearly £800,000 and for some vessels fuel can account for as much as 50% of their annual income.

The price of fuel has been increasing for many years. Fuel price peaked in 2011 and has only this year come down again to its lowest since 2010. Despite this recent decrease, most fuel price analyses suggest that the cost of fuel is likely to remain high in coming years. Since fuel price is outside of the control of individual vessel owners, reducing the amount used is the most effective short term method of cutting spending on fuel.

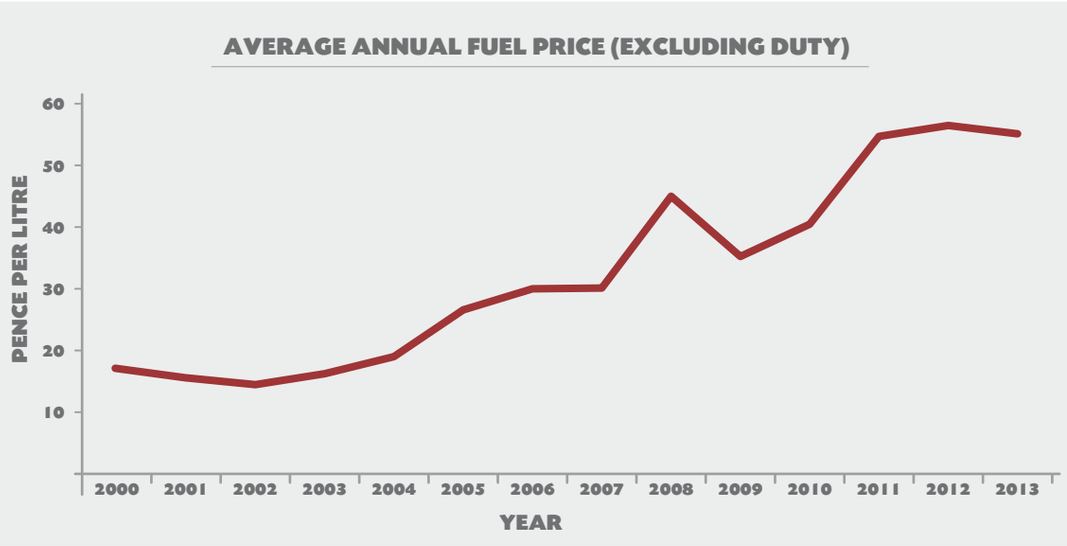
Fuel consumption varies massively between vessels and is affected by factors ranging from the engine type, to the weather. Whilst unfortunately skippers cannot control the weather, alterations to fishing practices and the vessel itself can significantly reduce fuel consumption. A 2006 Seafish report on options for improving fuel efficiency described a number of options available for skippers aiming to improve the fuel efficiency of their vessel. Technical measures to reduce fuel consumption can include options like upgrading the vessel

including the engine or fishing gear, regular vessel maintenance and the use of gear monitoring units. Operational methods to improve fuel efficiency includes options like reducing steaming and towing speed, changing landing ports and altering trip planning practices. While some of these measures may include significant capital investment, others may simply require a change in behaviour. Ultimately all changes will carry a financial or time cost and it is therefore up to the skipper select the most appropriate option for their vessel and strike a balance between fuel consumption, time fishing and volume of catch in order to achieve optimum fuel efficiency and maximise savings.

"The price of fuel is back down to under 50p per litre, that's the lowest it's been in three or four years, but it's still by far our biggest expenditure and will probably remain so."

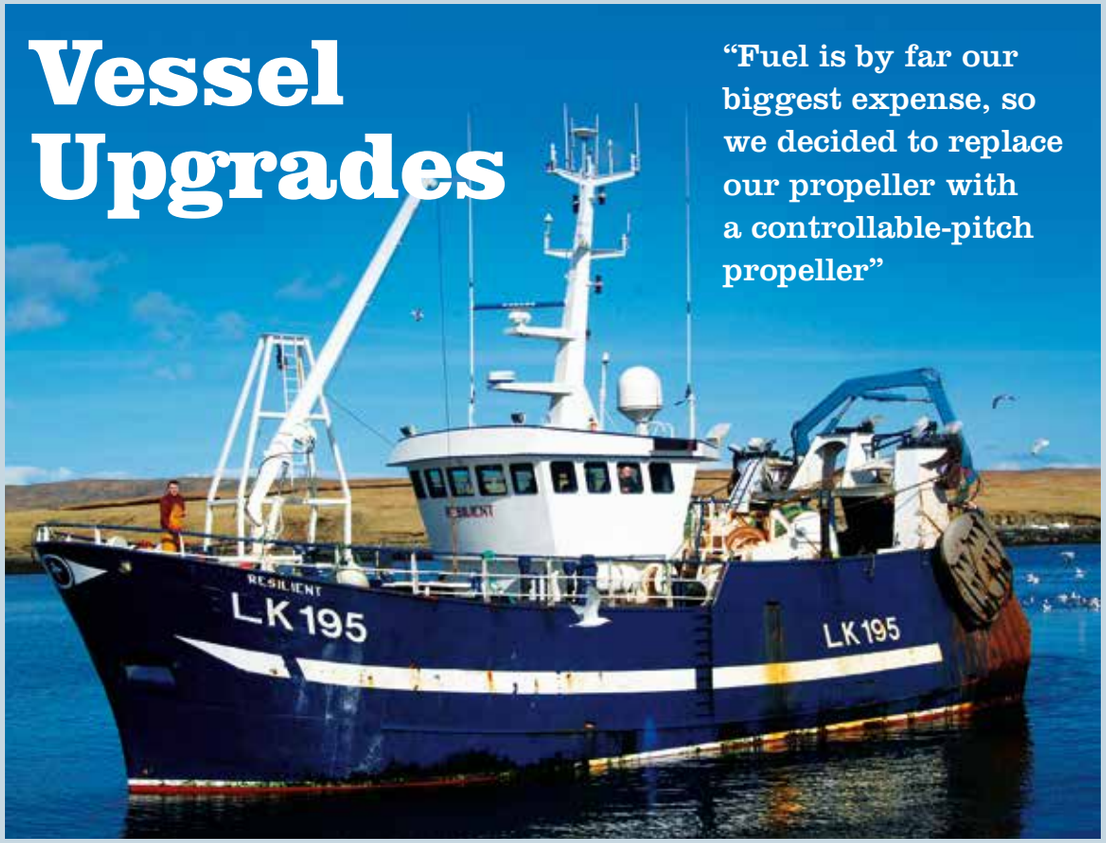


Regular vessel maintenance enhances fuel efficiency.



Vessel Upgrades

"Fuel is by far our biggest expense, so we decided to replace our propeller with a controllable-pitch propeller"



According to the FAO's fuel and financial savings for operators of small fishing vessels "The propeller is the most significant single technical item on a fishing vessel. Poor propeller design is the most frequent single contributor to fuel inefficiency."

During the survey we spoke to Arthur Polson from Shetland, skipper of Resilient, who explained the fuel savings he has made through upgrading the propulsion system on his vessel.

Resilient is a 24m trawler, targeting white fish in the North Sea "We fish locally, steaming about seven hours away from Lerwick and spend about five to six hours towing. We're normally at sea a total of about three to four days a week, usually landing midweek."

According to MMO data the majority of UK fishing vessels were built between 1971 and 2000, many of which are much less fuel efficient than modern vessels. "Resilient was built in 1997, at the time diesel was only 10p per litre so fuel efficiency wasn't really top priority when designing or buying a boat." When fuel prices peaked in 2011, Arthur opted to make upgrades to his vessel, enhancing fuel efficiency and reduce spending. "About three years ago we had a new propeller fitted. We chose a four blade Controllable Pitch Propeller, which wasn't cheap but is much more fuel efficient than an ordinary fixed pitch propeller."

The pitch of the propeller blades can significantly affect fuel efficiency. A fixed-pitch propeller cannot achieve maximum efficiency all of the time since the optimum pitch is different while free running and towing. A controllable-pitch propeller (CPP) can alter the pitch of the blades to suit the speed and load conditions, absorbing

"A controllable-pitch propeller can result in fuel savings of up to 15%"

maximum power from the engine and operating more efficiently. Whilst not suitable for all vessels, those operating with a CPP have increased maneuverability, can accelerate faster from a standstill, decelerates more effectively and most importantly they are more fuel efficient. However FAO guidance states that "if a controllable-pitch propeller is well designed and correctly operated, it can result in fuel savings of up to 15 percent compared with a fixed-pitch propeller operating in a nozzle."

"We've already noticed a big difference in our fuel bill and with savings like that it won't take long for the new propeller to pay itself off"

Having a CPP designed and installed is by no means cheap, as they generally have to be customised for specific vessels. Prices vary depending on the specifications but they generally weigh in at around £70,000, a significant investment. Despite the high cost, since installing the new propeller Arthur has seen a significant reduction in fuel use on board Resilient and has made savings comparable with the FAO estimates. "We were burning about 17,000-18,000 litres per trip, with the new propeller we've made a saving of about 2,000-3,000 litres per trip." With marine fuel currently at around 50p per litre, Arthur is making savings of approximately £1000 per trip with the new propulsion system.

Resilient has reduced fuel use by 10%-15%

Beating Down the Fuel Bill

The largest single expenditure for most fishing businesses is fuel which has more than doubled in price since 2005. Fuel price is likely to remain high for the foreseeable future, so many vessel owners are now seeking methods to reduce their fuel use and cut costs. There are a number of ways of reducing fuel consumption, some requiring significant capital investment, others requiring a change in behaviour and since all fishing businesses are different, not all will be suitable for each vessel.

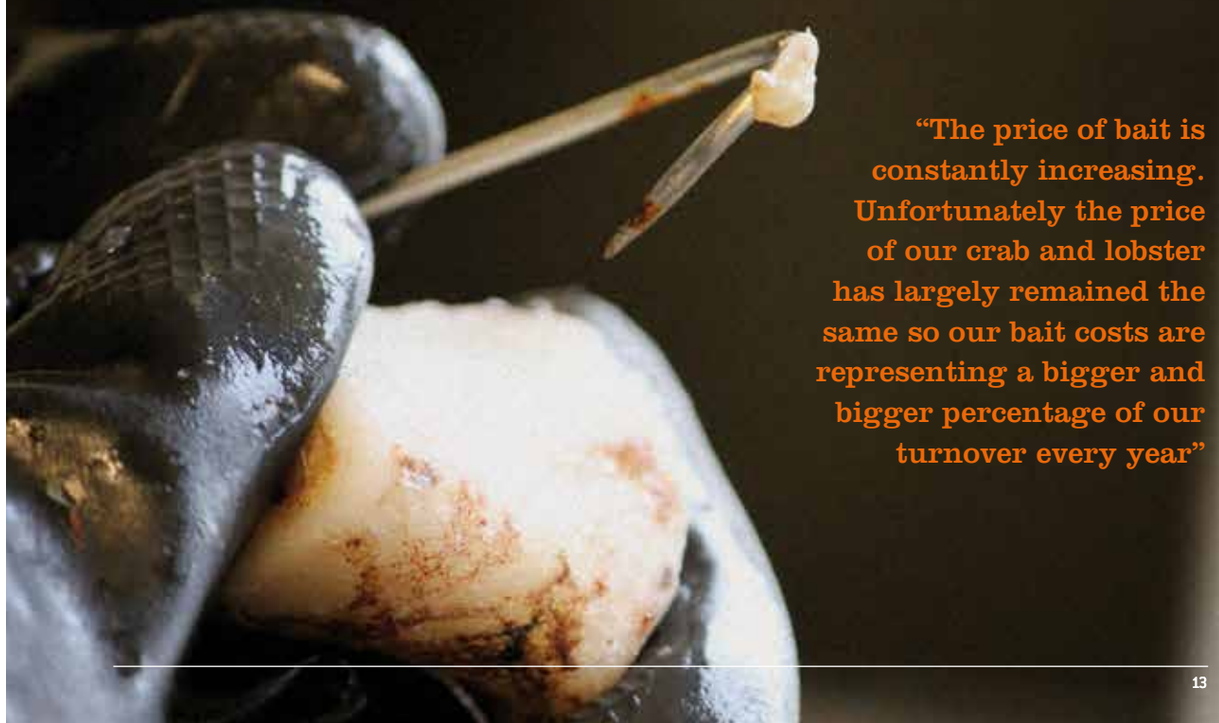
By upgrading Resilient's propulsion system, Arthur has made savings of 10-15% on fuel. Considering the volume of fuel that vessels like Resilient use, this reduction represents a significant saving despite the high capital investment required. Various other options exist to reduce fuel consumption and it is up to the skipper to choose the most appropriate for their business.

Take the Bait

Many fishermen from the potting sector are becoming increasingly concerned about the rising cost of bait. Bait costs represent around 10-11% of gross turnover for the shellfish sector and have been increasing for a number of years. It was clear from speaking to skippers that many are attempting to reduce this cost by exploring different sources of bait.

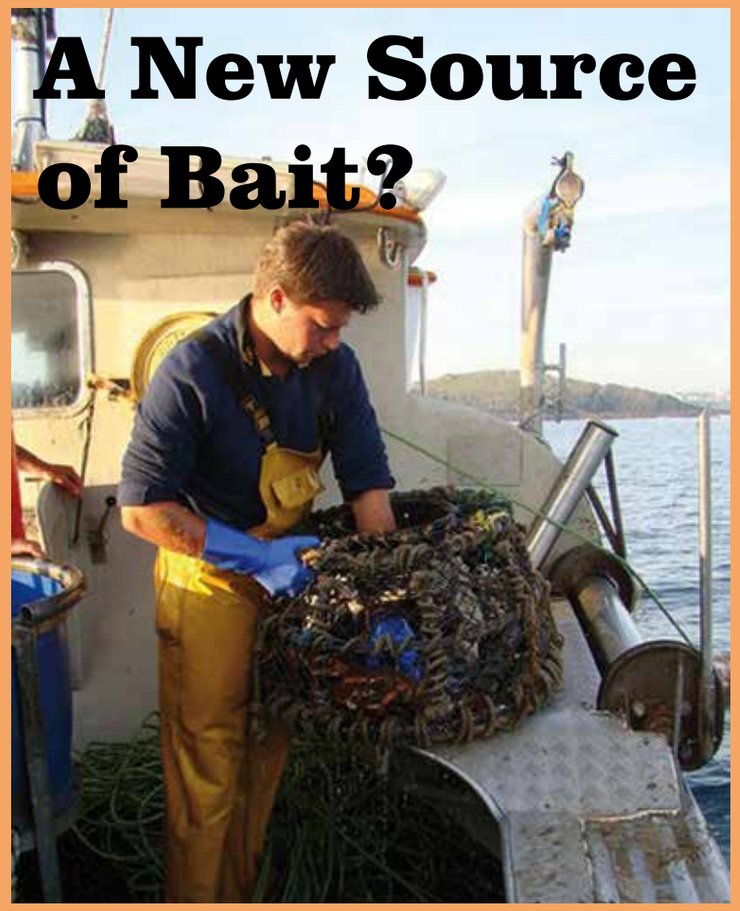
"We mostly use scad for bait, sometimes mackerel frames if we can get them but the price has increased dramatically and continues to increase. In fact, our supplier increased the price of scad by £1 a box this morning," said one fisherman, "I've only been fishing for a few years but even I notice that the price of bait is constantly increasing. Unfortunately the price of lobster and crab at market has largely remained the same so our bait costs are representing a bigger and bigger percentage of our turnover every year."

Many skippers we spoke to suggested that the upcoming landing obligation could have a positive effect on the price of bait. It is accepted by fishermen, scientists and policy makers that under the landing obligation fish will be landed for which there is no market and this has led to suggestions that low value species could potentially be used as pot bait.



"The price of bait is constantly increasing. Unfortunately the price of our crab and lobster has largely remained the same so our bait costs are representing a bigger and bigger percentage of our turnover every year"

A New Source of Bait?



Research carried out in 2014 by Seafish explored the idea of using discards for pot bait. The study trialled a range of different bait sources in different fisheries to assess the effectiveness of discards as a pot bait but also looked more closely at the supply and demand chain for pot bait in England. We spoke to project lead Nathan de Rozarieux about his research.

"Bait prices have been increasing for a number of reasons, in the last few years we have seen an increased market for fish for human consumption. Gurnard for example were traditionally considered a low value species and often used as pot bait however use of such species by celebrity chefs and in high-end restaurants has increased their profile and their price," Nathan pointed out, "People have realised the health benefits of eating oily fish so demand for pelagic species such as mackerel has increased considerably as well. Export markets in Asia and Africa have also increased significantly, fisheries are now a truly global market and all of these factors have an effect on the price of pot bait."

"By far the biggest challenge is matching the supply of discards to the demand for bait; this is probably best achieved through local arrangements between skippers."

"In the past many pot fishermen relied on fish processing waste such as heads and frames as a source of bait, however the demand for fish products is increasing to such a point that we are seeing some processors move towards using more advanced protein recovery methods to make the most of their fish," explains Nathan, "Some processors are now using by-products such as heads and frames to make pellets and supplements either for human consumption or for animal feeds. These changes are all putting more pressure on the bait market and prices are increasing."

"This work came about as part of a larger project looking at the handling and use of discards and under-utilised species. We wanted to see if discards could potentially replace traditional pot baits. Using discards in this way could have benefits for both sides of the industry by providing pot fishermen with a source of cheap bait and providing fishermen in the mobile sector with an outlet for some of their unwanted fish."

Sea trials were carried out in the south-west of England with interesting results, "To carry out this research two local trawlers supplied pot fishermen with a selection of fish they would otherwise have discarded. The general consensus amongst fishermen was that most species could be used in crab fisheries but that fishing for lobsters required very oily or salted bait. The study proved the fishermen right, discards were not found to be an effective bait for lobsters but crab fishermen noticed no change in catches and in some cases actually found an increase in catches, we think this was a result of the increased robustness and meat content of the discards when compared to processed fish frames."

Despite the effectiveness of discards as pot bait in crab fisheries there are still some problems as Nathan discussed, "By far the biggest challenge is matching the supply of discards to the demand for bait. If the discards have to be frozen, packaged, stored or transported from one harbour to another the associated costs may outweigh the benefits. For larger vessels the logistics of securing a large enough supply of discards may be too difficult. As a result we think that some smaller vessels may stand to benefit most from using discards as bait. If they are able to make local arrangements with their colleagues in the mobile sector it is possible that some fishermen could reduce their overall bait costs."

"The study also found that at current levels the demand for pot bait in the English shellfish sector is likely to exceed the predicted supply of discards by around 68%. With exemptions to the landing obligation still being defined it is possible that landings of discards may be even lower than anticipated, however the study does show that the use of discards as pot bait could be a useful outlet for some fishermen."

Analysis showed that the demand for pot bait is likely to exceed the estimated supply of discards by 68%

During this year's fleet survey Seafish researchers found that some fishermen are already using other bait sources with some success, "We maintain a close relationship with the trawlers working in the harbour. We buy non-TAC and low value species – such as whiting – from trawlers for around £25 per box," explained one skipper, "On average we use three boxes of bait a day so it's not hard to see how our costs begin to add up so every little helps when it comes to cutting down on costs."

Although the details of the landing obligation are still being developed fishermen feel that there is scope for using discards as pot bait – particularly in brown crab fisheries – but only if the price is lower than the current price of bait. "Under the landing obligation many of our local trawlers and netters are expecting to land more fish that might not be worth taking to market, we could use discards as bait for crab and whelks but we would only consider making the switch if it was going to save us money," said one east coast skipper.

Could discards replace traditional baits?

Inputs and Outputs

In comparison to costs like fuel and fishing gear, bait still makes up a relatively small proportion of turnover for most static gear fishermen. That said, the increasing price of bait was consistently mentioned by fishermen around the country as a factor influencing the financial performance of their business and is a significant concern.

One Scottish creeler looked at things in a slightly different way:

"Fishing is a business just like any other, there are inputs and outputs. At the end of the day, if I'm burning fuel and using bait then I am out there fishing and that's better than the boat being tied up in the harbour."

"The increasing use of modern materials means that the price of many fishing gears is now linked directly to the price of oil."

What Drives the Price of Gear?

"By far the biggest advancement in gear technology in recent years has been the shift to more modern materials that are stronger and more abrasion resistant."

Mike Montgomerie, Seafish Gear Technologist.

A common topic discussed in this year's fleet survey was fishermen's concerns over the increasing price of fishing gears, we asked Mike Montgomerie Gear Technologist at Seafish to explain the cause of price increases. "By far the biggest advancement in gear technology in recent years has been the shift to more modern materials that are stronger and more abrasion resistant. Unfortunately most of these materials are oil based meaning that the price of fishing gear is inextricably linked to the price of oil; as oil prices have increased over recent years the price of fishing gear has increased accordingly," explains Mike.

A range of factors contribute to the changing price of fishing gear, according to Mike the increasing complexity of fishing equipment also plays an important role in driving prices. "As we've learned more about fishing gear the demands on manufacturers have changed: trawls are made up of a multitude of panels of varying shapes and sizes, pots are made to last longer and fishermen are using longer strings of pots. These factors all contribute to increasing costs."

The cost of fishing gear was found to be a particular issue for fishermen in the under-10m static sector. Whilst gear costs are a concern for all fishermen, potters were particularly worried about both the high costs of purchasing new gear and an ongoing shift in the sector towards more and longer strings of pots. At around £60 per fully rigged lobster pot and with some vessels running several thousand pots it is clear to see how costs can quickly spiral out of control.

In the past few years the problem of gear costs has been further exacerbated by the British weather. Storms in the winter of 2013 wreaked havoc on much of the UK fleet. Whilst almost all vessels were badly affected in terms of losing days at sea (many fishermen commented that their boats had been tied up for up to three months) the static sector was particularly affected. When the winds finally subsided many fishermen ventured out in search of their pots only to find that rough seas had damaged, destroyed or taken much of their gear. With most fishermen using over 100 pots per string it was not unusual to hear of individuals losing upwards of £25,000 worth of gear over the course of the winter.

"It's not just the cost of buying new gear," explained one Welsh potter, "there's the time it takes to replace the gear. Time that should be spent fishing but instead your boat is tied up and you're not able to make money."

Ultimately the cost of gear is often related to factors outside of the fishing industry, be it the increasing price of raw materials such as oil or steel or unpredictable gear losses as a result of weather conditions. Many fishermen we spoke to during our survey noted that gear costs had increased but also pointed out that their catches had improved with particular types of pot or that certain trawls were more selective, factors which have a positive impact on the financial performance of their fishing business. As a result many fishermen seemed to accept that such developments would have an effect on prices but that changes were part and parcel of an industry that is always evolving.

The Price of Fish

Many of the skippers who took part in this year's Fleet Survey expressed concern about the value of their catch. Some stressed that the cost of overheads has increased significantly and that these changes are not reflected in the prices they receive.

As one skipper from the Western Isles explained "The price of catch has stayed the same for many years, despite the increasing cost of all overheads, this means you now have to catch more to cover your costs, further saturating markets." While options exist for vessel owners to reduce costs, profits must remain high enough to make it worthwhile going to sea.

Fishermen across the country go to huge effort getting seafood out of the ocean. Fishing is a challenging and dangerous profession and thousands choose sleepless nights and rough seas over an onshore job. During the survey, fishermen across the country told us that "we don't do it for the money" or "fishing is more than a profession, it's is a way of life" and one North Sea fisherman commented "Of course its hard work but I'd much rather be out at sea than stuck in a boring office." Getting a good price for their catch is important to fishermen across the country not only to ensure fishing remains a worthwhile profession but also to reward the huge effort invested in providing markets with this valuable food source.

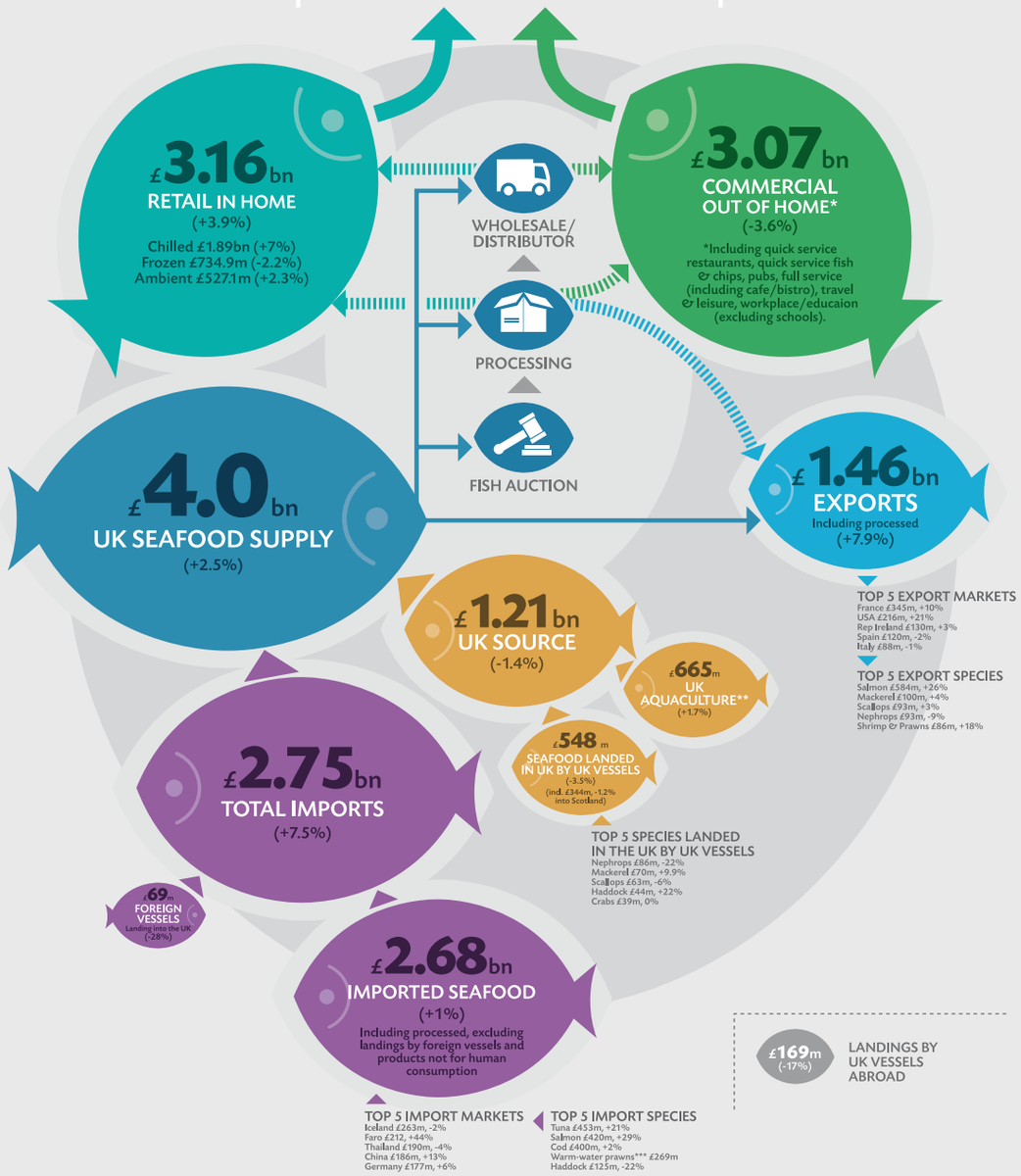
Prices are generally governed by supply and demand. Which themselves can be affected by a vast number of things, some outside of either the buyer or sellers control. These can include availability of quota, abundance of fish, desirability of a particular species and confidence in the product itself. If for example a marketing campaign succeeds in encouraging consumers to buy a particular product which is in limited supply, the price will increase because there is more competition amongst sellers. On the other hand, if a food safety scare reduces consumer confidence in a particular product, sellers will reduce the price to sell more. Prices are further influenced by factors including buyer and seller relationships, access to markets and how urgently produce or payment is required. Additionally, nearly 73% of our seafood is exported, prices in this country are therefore sensitive to global market conditions as well.

Seafood reaches consumers through supply chains which include a number of different stages. At each stage, the value increases as services are carried out, e.g. filleting or distribution. The price the consumer pays is therefore always greater than the price the fisherman receives because the consumer is also paying for all of the value added services occurring between the first and final sales. Ultimately the retail price is determined by the consumers' willingness to pay and the sum of the earnings of everyone in the supply chain cannot exceed what the consumer pays. If more payment is required at any stage, the extra cost must be passed to another level, meaning either an increase in the retail price or a reduction in the earnings at another level of the chain.

Auctioning fish at Brixham Market

UK SEAFOOD INDUSTRY SUPPLY CHAIN 2013

UK CONSUMERS PURCHASED **£6.23BN** +0.2% v 2012 OF SEAFOOD IN 2013



Sources:
Neilson Scantrack MAT 04.1.14, Crest Dec'13 | Marine Management Organisation, Fisheries Administrations in the UK
** FAO - Fisheries and Aquaculture Information and Statistics Service FIGIS 2012 | *** No Shrimp code data for 2012 to calculate % change
N.B. Percentage change figures relate to 2013 v 2012

Selling Direct

Dreckly Fish is a small group of Cornish fishermen who have bypassed the regular supply chain by selling directly to customers. Their front man Kevin Penney, explained to us how this has improved the price they get for their catch and some of the main challenges and benefits involved in selling directly to customers.

"We felt we'd done everything we could to improve the quality of our catch and were still having prices dictated to us, so we decided to devise a way of engaging with the end customers more directly." In 2013 Dreckly Fish began selling their catch to a small number of local hotels and restaurants. "We started off by setting up a Twitter account and following people we thought might be interested in seeing our catch, mainly hotels, restaurants and fishmongers.

Customers can place orders via email, phone, text and social media and many of their regular customers now also pre-order. "Some of our customers order in advance allowing us to plan our fishing efforts for the coming week. We deal mostly in shellfish so on days when we don't have many orders we get an opportunity to prepare the ground or build-up a supply in our store pots." Dreckly can also supply line caught fish, much of which is often sold before it even gets to shore and their record speed was selling one fish within 20 seconds of the photo being published online "We specialise in crab and lobster but we also supply a lot of wet fish, which of course has to be sold the day it's caught as we don't have the facilities to store it, we are after all fishermen not processors."

> **"We would post photos of our catch on social media sites and effectively use it as a method of advertising."**

A typical catch for Kevin

Andrew landing mackerel in Newlyn

Picked and packed lobster meat ready for delivery.

"Each of the guys probably spends an extra half hour recording their catch and packaging orders in our custom built packing shed. So there's some extra work involved, but it's a value adding process and we think it's worth it."

The team have also recently teamed up with a local seafood processor who prepare and package crab and lobster meat for Dreckly. "I did an audit of all the local processors to select the best one, and we have a very good business relationship with them. When we get an order for processed shellfish we send the smaller ones to the processor who pick and package the meat for us, we collect it the next day to deliver to our customers" so even their processed shellfish is incredibly fresh, reaching customers within 48 hours of being caught. "We've also recently started doing lobster meat which is really popular."

This extra value does not of course come without extra effort. Each of Dreckly's four fishermen is responsible for recording their own landings for the MMO and they all chip in with packaging and delivering orders. "We've developed delivery routes on our way home so that we can get produce to local customers as quickly as possible. They really like the freshness and the traceability of our produce, they know exactly where it's come from and they even know the fishermen who caught it." Refrigerated distribution companies can also deliver Dreckly's produce anywhere in the UK mainland within 24 hours.

Key to Dreckly's success is the positive working relationship with processors, distributors and most importantly, their customers. "We specialise in delivering high quality seafood and the customers choose us because they want produce that is fresh, local and 100% traceable." It is, however essential for their customers to understand the limits of what Dreckly can produce "We go to great lengths explaining to our customers how we fish, it's important for them to understand that we cannot supply them the way they would expect a fishmonger to, he has many resources to draw on, from across the country while we're limited to one location. Likewise, the weather can prevent us going to sea, we're a fleet of small boats, all under 21ft and there was a three and a half month period last winter where we just couldn't get out to fish. We can build in a buffer by using store pots but only for shellfish." By dealing personally with their customers, the Dreckly team have the opportunity to explain their limits and find that most are happy to compromise in exchange for fresh, local and traceable produce.

Another essential aspect to Dreckly's success is their ability to work as a team "We are now working together towards a common goal instead of individuals competing against each other, we are able to coordinate our fishing effort and maximise our yield instead of competing for space and constantly being at each other's throats." Working together means Dreckly are able to catch the quantity and variety needed to fill their orders, a difficult feat for an individual fisherman. Communication is therefore vital to coordinate their fishing effort and Kevin spends a good deal of time updating the team with orders as they come in "Orders are coming in all the time, from social media, email, phone, text, all over the place! To streamline this we now all have iPhones or iPads, which means I can update a shared schedule with orders as they come in and the whole team can instantly see it, we can then divide tasks between us." The Dreckly team were able to purchase this equipment - and training in its use - through grant funding from their fisheries local action group (FLAG) under the European Fisheries Fund (EFF).

The Dreckly team showing off their 'Lobsters with attitude'.

Weighing Things Up

By selling directly to the end customers, the Dreckly team have effectively shortened the supply chain, meaning they receive the whole retail price instead of just a fraction. In doing so they have incurred extra costs because they must pay for packaging and distribution, and must also spend extra time recording landings and preparing orders; however Kevin told us they're happy putting in the extra effort because they feel it's fairly rewarded.

"We're happy because we're now getting a price we think is fair."

In essence the Dreckly example is a simple business model; cut out the middle man and sell directly to the end customer. Advertising their catch on social media has allowed them to reach out to a potentially huge customer base and using modern technology like iPads has allowed them to efficiently plan and coordinate their fishing effort and as a team they can maximise yields. Dreckly are confident that their model could be scaled up for bigger groups of fishermen and for different types of boat. Kevin is highly optimistic and has plans to continue growing the business in the near future.

Modernising Markets

Auctions are the most common method of selling fish in the UK. The UK's top 5 landing ports (by volume) all have sizable auctions, which according to MMO figures sold 213,400 tonnes of seafood in 2013 worth £236million; approximately one third of the UK total. Auctions have the potential to bring together large numbers of buyers and sellers, making a highly competitive market place, driving prices. Providing they are well managed, auctions are often seen as the best method of consistently achieving a high price for seafood.

In 2003, after years of planning, Shetland switched to an electronic auction. Martin Leyland, Manager of the Shetland Seafood Auction (SSA) explained to us how the market in Shetland has been revitalised and how prices have been affected, a decade after the auctions beginning. "Towards the end of the 1990's, Shetland's market was dwindling partly as a result of the decommissioning scheme and also because of both local and visiting vessels choosing to land elsewhere, where prices were better."

A group of five shareholders comprising Shetland Fish Producers Organisation, LHD (the main vessel agent), Seafood Shetland, Lerwick Port Authority and a local development trust formed with plans to transform the market. "The shareholders all have an interest, and in some cases a duty, to preserving the local fishing industry, they recognised that in order to maintain Shetland's fishing industry and its economy, they needed to encourage more boats and more buyers to use the market. This also means a large proportion of the profit is reinvested back into the auction allowing us to develop and expand."

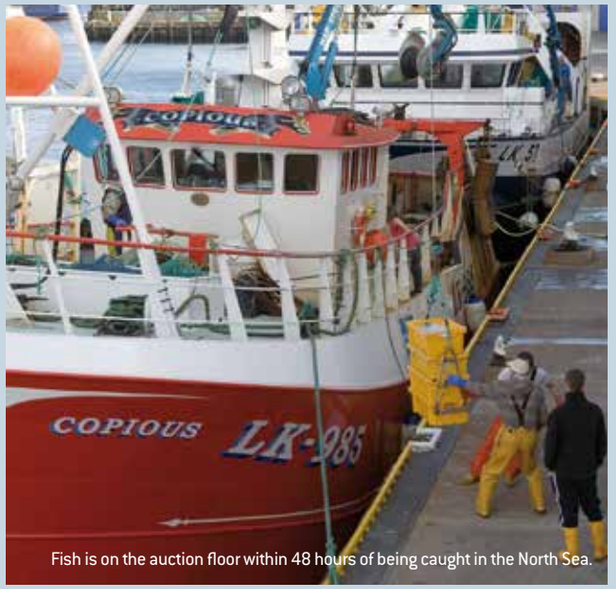
> "Local fishermen and managers recognised that to prevent the market from stagnating and shrinking further, it was essential to widen the market and stimulate competition."

The new auction adopted an electronic 'Dutch Clock' style. "In the Dutch auction, prices start high and descend until a buyer 'stops the clock' at a price they want to pay. They select the desired volume at that price and the remainder of the lot goes back onto the clock for others to bid." The Dutch system is generally thought to be quicker and more efficient than a traditional 'Shout Auction' because the produce is viewed beforehand and bidding takes place in a separate room "While bidding continues in the auction room, lots can be packaged on the floor, ready for distribution. Being electronic means the whole system is more efficient, for example even invoices are automatically generated from a memory stick at the end of the auction." In 2008 SSA also opened up to remote buying, allowing buyers to join the auction via the internet. "When we started remote bidding only about 2-3% of our sales were online, now it can be up to 10% some days. Crucially it's opened the market to a much wider audience, as people don't actually have to be present to bid, which is vital for somewhere as remote as Shetland."

> "Remote bidding is vital for somewhere as remote as Shetland."

Shetlands fishing industry thrives on its commitment to quality and a rigorous approach to upholding standards. "The proximity of the market to the North Sea fishing grounds allows boats to land more frequently meaning fish is exceptionally fresh, normally reaching the market within 48hrs of being caught." Shetland Seafood Quality Control, responsible for upholding quality standards, was established in 1985 with the aim of enhancing the reputation of Shetland's Seafood "A quality control manager undertakes daily inspections of produce in the market to approve grading and provides individual vessels with monthly reports advising them how they can improve the quality of their catch through their catching, handling, storing and landing procedures. The fishermen find these reports really useful and are keen to take the advice on board because it helps ensure they get the best possible price." Confidence of buyers in the accuracy of grading and weighing is essential and the Shetland Seafood Auction has established a reputation for excellence.

A great deal of planning and management goes into the SSA, ensuring stable prices by avoiding over or under supply. "Skippers are in constant contact with agents who advise them when to land based on which vessels are expected to land that day, this helps to ensure an even distribution of fish coming into the market." Having a consistent supply encourages buyers into the market because it gives them confidence that there will always be quality fish available. Information on current landings and recent prices is published on the auctions website, effectively advertising itself. SSA also holds a database of historic landings and prices which are used to analyse longer term

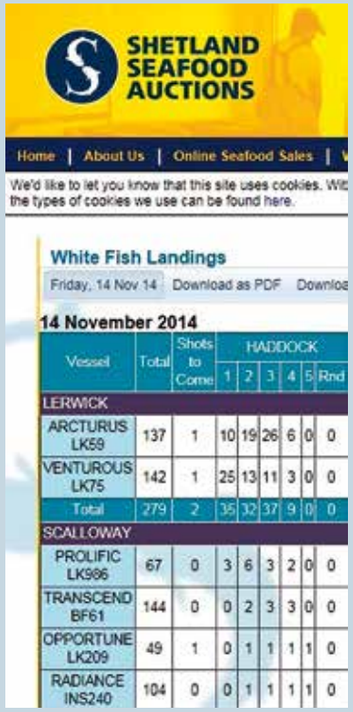


Fish is on the auction floor within 48 hours of being caught in the North Sea.

> "Our approach to quality encourages high value purchases and enhances trust amongst the buyers, this is especially important for remote bidders who can't see the fish before buying. Building up this reputation has taken a long time and is the result of our commitment to quality; the success of the market communicates the quality of service"

trends "Agents and the PO can also use our datasets of historic landings and price to look at wider trends and they use this to advise vessel owners on their fishing activities, again helping to maintain stable prices in the market." Since the Shetland PO also manages quota they are able to forecast supply, and collectively plan fishing activities, this again helps smooth out peaks and troughs in supply and maintain stable prices.

"The auctions website is continually updated, allowing potential buyers to see the volume and grade of fish coming in and plan their purchases."



Vessel	Total	Shots to Come	HADDOCK 1	2	3	4	5	Rnd
LERWICK								
ARCTURUS LK59	137	1	10	19	26	6	0	0
VENTUROUS LK75	142	1	25	13	11	3	0	0
Total	279	2	35	32	37	9	0	0
SCALLOWAY								
PROLIFIC LK986	67	0	3	6	3	2	0	0
TRANSCEND BF61	144	0	0	2	3	3	0	0
OPPORTUNE LK209	49	1	0	1	1	1	1	0
RADIANCE INS240	104	0	0	1	1	1	1	0

The landings page on the auctions website is updated daily

Fish is viewed on the market floor prior to bidding in the auction room

Making the Switch

Last year was a record year for the SSA both in terms of the volume and value of landings with approximately 1200 boxes landed per day at an average price of £1,530 per tonne. The original aim of the auction was to attract more vessels and buyers into the market and this has been achieved with astounding success; transforming Shetlands fishing from an industry in decline to one that is thriving, dynamic and resilient.

There are big plans for the future of the Shetland Seafood Auction, Lerwick Port Authority are reinvesting in a new market, due to be complete in 2017. By upgrading the market facilities, encouraging more local and visiting boats to land, facilitating remote buying and pushing quality standards the SSA has helped revitalise the local industry. However, this has taken a large degree of commitment and cooperation from the vessel owners, managers and local fisheries administrators.

Shetland manages its fishing industry unlike any other fleet in the country. The cooperative nature of the industry, be it through the shareholder ownership of vessels or the shared management of the SSA means that everyone is rowing in the same direction towards a common goal. There is an understanding that while competition is healthy, by working together each individual takes on a shared ownership and responsibility for the success of the whole system, and the system itself becomes more than just the sum of its parts. In this respect Shetland has an advantage because of the inherent nature of island life, where cooperative systems are more commonplace. When asked what advice he would give to others seeking to establish a similar system, Martin commented:

"That's easy; we know that the technology works, the tricky part is getting human beings to work together."

Change on the Horizon

The UK fishing industry is certainly no stranger to change, however the upcoming landings obligation is viewed by many as one of the biggest changes facing the industry since the introduction of the Common Fisheries Policy (CFP) in the 1970s.

The landing obligation is a key part of the reformation of the CFP. The new policy aims to gradually eliminate discards from EU fisheries, in essence banning the dumping of unwanted fish (for which there are currently catch limits) whilst at sea in an effort to minimise the pressure on our fish stocks. As part of this year's fleet survey Seafish researchers asked fishermen about the landing obligation and how they felt it would affect their business, this section of the survey showed that whilst no fishermen want to discard good quality, marketable fish the new law has many worried about the future and the impact the new policy could have on the industry.

The landing obligation will come into force in the pelagic sector in 2015, however discard rates for pelagic fisheries are already very low (usually ranging from 0-4%) and the industry is already subject to high-grading and slipping bans. As a result most pelagic fishermen we spoke to during our survey had few concerns about the landing obligation.

The demersal fleet (including trawlers, seine netters and beam trawlers) presents a much more complex case than the pelagic industry. Demersal boats largely work in mixed fisheries for a wide range of species for which they may have varying levels of quota. Some of the key points raised by skippers during this year's fleet survey are explored in this section.

- **Choke species** - Fish for which a vessel does not have sufficient quota could effectively lead to fishery closures and boats being forced to tie up despite possibly having quota available for other species. As one trawler skipper stated "In a mixed fishery there is simply no way of stopping certain species from entering the net, in reality we have very little control over that. Take the past month for example: our hake quota was exhausted quickly but we could still land our haddock and whiting, we wouldn't be able to do that under the proposed landing obligation if the quota system remains unchanged. Our business and livelihood will be severely impacted."

- **Quota shortages** - Many fishermen are already concerned about the lack of quota available and feel that the need to land all fish caught against their quota could worsen the problem and intensify competition between vessels. "We just hope that the current quota system is changed to allow fishermen to keep working: we need increased flexibility - with regard to allocation, swaps and transfers – and some level of uplift if we are to land everything," stated the skipper of a west coast twin-rig trawler.

- **Exemptions** - At the time of writing there is still some uncertainty about what exemptions there may be to the rule. It is thought that a de minimis exemption of around 7% of all species will be allowed (whereby a fixed percentage of discarding is allowed when it is judged that unwanted catches cannot be avoided by any means). Other possible exemptions include allowances for species with a high survivability.

"We just hope that the current quota system is changed to allow fishermen to keep working: we need increased flexibility - with regard to allocation, swaps and transfers – and some level of uplift if we are to land everything,"

- **Capacity constraints** - Many fishermen expressed concerns that they will not have space on board to store all of their catch if they have to land fish that would otherwise be discarded. "We can't put it into the fish room; we need that space to keep the fish bound for market in good condition. We could be forced to keep it on deck which is a real safety issue and will make for unpleasant working conditions in the summer months," said the skipper of a beam trawler fishing the English Channel.

- **Ecological impact** - Some skippers commented that there may be unforeseen ecological impacts of the landing obligation. "The ecosystem has already changed. Many species including sea birds, mammals, fish and shellfish now depend on discarded fish as a source of food, there is no way to predict the impact of suddenly removing a major food source from the ecosystem," said the skipper of a seine netter working the North Sea.

DECEMBER 2013
EU Council agree on the reformation of the existing Common Fisheries Policy.

1ST JANUARY 2015
Landing obligation introduced for EU pelagic fleet.

1ST JANUARY 2016
Landing obligation introduced for all TAC species caught by the demersal fleet in remaining EU waters (including the Mediterranean and Black Sea).

1ST JANUARY 2017
Landing obligation introduced for demersal fleet in remaining EU waters (including the Mediterranean and Black Sea).

2016 to 2019
Landing obligation gradually rolled out across any remaining fisheries in the EU.

The Flip-Flap Grid

Another haul comes aboard the Sardonyx II

As part of the survey we spoke to Michael Watt, a skipper from the north-east of Scotland about some of the measures he is taking to cut his discards before the landing obligation comes into force. Michael is the skipper of Sardonyx II (an 18m twin-rig trawler targeting Nephrops and whitefish from her home port of Fraserburgh) and owner of Gamrie Bay Prawn Trawls. Working in a mixed demersal fishery with strict quotas and species management plans Michael has a real appreciation of the problem discarding poses.

With the landing obligation rapidly approaching, many fishermen are turning their attention to their gear and efforts to fish more selectively. Drawing on his fishing and gear making experience Michael and Gamrie Bay Prawn Trawls were part of a combined effort between the Scottish Fishermen's Federation, the Maillaig and North-West Fishermen's Federation, Marine Scotland and a number of gear developers from around the country who worked together to develop what they call the Flip-Flap Grid (FFG) trawl.

The design relies on understanding the way different species behave when caught in a trawl, whitefish such as cod and haddock instinctively swim upwards when they encounter an obstruction. The FFG trawl uses a 200mm square mesh panel set in the mouth of the trawl to direct fish upwards to an open outlet hole on the roof of the gear to reduce the catch of unwanted fish. The bottom of the panel is left unattached to the main body of the trawl creating a flap that allows ground

"The Flip-Flap Grid allows us to fish more selectively by guiding certain species out of the trawl through an escape hatch. We have noticed a significant reduction in our unwanted catch of cod, haddock and whiting."


Buoys hold open a fish outlet hole on the trawl

fish such as monks and megrim to pass into the cod end whilst Nephrops pass directly through the 200mm mesh. A 160mm square mesh panel on the roof of the trawl further encourages small whitefish to escape.

"The landing obligation is obviously a concern but you have to remember that fishermen have been trying to reduce their discards for years," explained Michael when we asked what motivated him to develop the gear, "The biggest driver for us wasn't the changing law (indeed we started development long before the landing obligation was proposed), it was a case of trying to look after our own fishery. No fisherman wants to dump fish needlessly so we wanted to find a way of reducing the amount of unwanted fish we catch as a means of looking after the North Sea fishery. At the end of the day, our livelihoods depend on a healthy fishery so we do all we can to ensure we maintain that."

"No fisherman wants to dump fish needlessly; our livelihoods depend on a healthy fishery so we do all we can to maintain that."

In recognition of their work the developers of the FFG gear were nominated for awards in the 2014 RSPB Nature of Scotland awards which recognise and celebrate excellence and outstanding achievement in Scottish Nature Conservation. The team were nominated for an award in the category of "Marine Conservation" and were highly commended runners up in the category "Innovation".

Michael now uses the FFG trawl permanently on Sardonyx II and is able to fish for Nephrops whilst cutting his catch of whitefish significantly. During trials in the Moray Firth in conjunction with Marine Scotland the FFG trawl was fished alongside a traditional Gamrie scraper rig with encouraging results. When using the FFG gear the weight of cod, haddock and whiting caught was reduced by 73, 67 and 82% respectively, a total reduction of more than 8,800kg of fish over the course of 19 hauls. Interestingly the reduction in catch was found to correspond closely to the size of the fish; this means that larger fish are actually more likely to be released by the FFG, an important point when considering that these larger fish make up the bulk of the breeding stock in the North Sea.

"Using the FFG trawl cod catches were reduced by 73%."

Development of new gear is not a straightforward process, the FFG trawl took over a year to develop and test. Michael described it as a drawn out process of working closely with net makers to create a prototype followed by a long period of trials at sea and refinement until the gear was finalised, however he states that although it was a challenging process the results are worth the effort.

"It was a long process but it was great to see the results, these days we know so much more about the way our gear works and the way fish behave; now we have to use that information to fish more selectively," explains Michael, "Change is never easy but everything has to start somewhere. Our aim is to keep reducing our discards and so we keep making minor modifications and refining our gear. Recently we increased the mesh size of our square mesh panel even further (up to 200mm) and noticed an even greater reduction in the amount of unwanted fish we catch. The crew and I see the benefits first hand and that is what motivates us to keep trying new things."

Speaking to skippers around the country it was clear that one of the key factors driving the discarding of fish is a lack of available quota. However, minimising discards can have a range of economic benefits in addition to helping fishermen comply with regulations. Having less weight in the cod end during trawling reduces drag during towing, improving fuel efficiency.


More fresh fish from the North Sea

Reducing the weight of unwanted fish also means that fish and shellfish in the cod end are under less pressure and are much less likely to be crushed or damaged. Tows in the North Sea prawn fishery can last for 5-6 hours so reducing the weight of fish in the nets can have a huge effect on the quality of the catch. Additionally, avoiding unwanted fish means that the crew's workload is reduced when sorting the catch.

"One of the biggest differences we've noticed is that the quality of the prawns we catch has increased. Without the added weight of whitefish, the prawns come aboard cleaner and in better condition which means we are often able to get a better price for our catch at market. Add to that the fact that the crew have a little less work to do when sorting and everyone is happy!" says Michael.

In recent years Michael has also been part of Marine Scotland's trial for fully documented fisheries (FDF). CCTV cameras on board the Sardonyx II are used to monitor entire catches as they are processed in an effort to accurately record all fish caught (and not just the proportion of a catch that is landed). The FDF system aims to ensure that fish stocks and catches are monitored more quickly and more accurately and it is hoped that this data will aid the development of real-time management plans. Michael also feels that the FDF system helps reduce discards by altering fishing behaviour: "It's always at the forefront of your mind and that helps you avoid certain areas where you think you might pick up unwanted fish, we're happy to have cameras aboard if it helps to collect data that can be used to improve the fishery in the long term."


Hauling nets in the North Sea Nephrops fishery

The Next Step

Despite the positive steps that are being taken throughout the industry the landing obligation is still worrying for many fishermen. There is much concern over the level of uncertainty that still exists around important points such as quotas, exemptions and costs, particularly given the proposed timeline of implementation.

"Admittedly the landing obligation is still a big concern for us, we are making progress but we may still struggle. We work the North Sea, a mixed fishery, and a mixed fishery is inherently unpredictable: there is just no way of really knowing what will end up in our nets so whilst we are managing to cut our discards significantly, it is always a worry that we might run into fish we don't want in the nets. We're still very keen to keep working with other bodies to continue our work and keep pushing forward with advances in gear technology."

"The landing obligation is still a big concern but we are making progress. This needs to be a joint effort between fishermen, marine scientists and policy makers, it is vital that we all work together."

Ultimately many fishermen now believe that the future must be based on building and maintaining partnerships across different areas of the industry to ensure that we are able to maintain a healthy, sustainable and profitable fishing industry. Undoubtedly innovative developments from those involved in the industry – such as the development of new gear technologies as seen with the FFG trawl – will play a key role in reaching these goals.

Gear Technology

“Fishing is a truly unique industry in that the vast majority of fishermen will never actually see the tools of their trade at work”

Mike Montgomerie,
Seafish Gear Technologist.

“Historically we focused on catching more fish. Now we design gear to be more efficient and more selective in order to avoid fish of a certain size and – in some cases – certain species.”

The inability to see your tools at work makes the process of designing and developing fishing gear an extremely difficult one particularly in light of the increasing demands on fishermen to be more selective, more efficient and more conscious of their impact on the marine environment. Gear technology (and in particular the cost of trialling or developing new gear) was a point raised by many skippers in this year’s fleet survey so we took the opportunity to talk to Mike about the history of gear development in the UK and the opportunities that exist for fishermen to learn more about the tools of their trade.

Historically developments in gear technology were largely driven by the desire to catch more fish, more quickly and were carried out at sea on a trial and error basis, success was judged only by the results that reached the surface. The 1950s saw the first attempts to observe fishing gear in-situ using towed divers to report exactly how various fishing gears behaved when in use in an effort to help make gears more efficient.

By the early 1970s focus had shifted and fishermen began to look at modifying gear to increase selectivity: “Until this point most effort was put into developing gears that would maximise the catch of market-size fish whilst cutting out the catch of undersize fish for which there was no market,” explains Mike, “This was fairly straightforward as far as selectivity is concerned. The widespread adoption of square mesh panels, which are not distorted when under heavy load, rather than diamond mesh was an important step in cutting the number of small fish that were caught and then discarded.”

The 1990s saw the selectivity issue pushed beyond avoiding small fish to attempts to exclude certain species from trawls as a result of the quota system, an altogether more complex task than filtering fish by size. “Selectivity based on species is an entirely different issue,” says Mike, “If the species differ in size significantly then they can be treated the same way we would undersize fish, the real problem comes when trying to catch one species in a mixed fishery of similar sized fish and that is what the current quota system requires.”

The desire to catch only certain species led to research focused on the way fish behave when herded and caught in a trawl or seine net. One good example of this is the tendency of round flatfish to flee upwards when disturbed by the tickler chains of a trawl and it was this knowledge that led to the development of covered beam trawls on which the chains sag well behind the beam of the trawl. This means that flatfish disturbed from the seabed by the chains will swim upwards into the roof of the net and fall back into the cod end. Conversely, the tendency of

Nowadays fishermen have fewer opportunities to trial their gear at sea

haddock and whiting to behave in a similar way when met with the footrope of a scraper trawl led to the design of coverless trawls (on which the headline lies behind the footrope) to allow certain species of fish to escape. Such trawls are often used by boats targeting ground fish and Nephrops which are more likely to stay close to the seabed.

Today the issues remain largely unchanged, the problem of discards is still at the forefront of gear development and as fishermen prepare for the landing obligation the selectivity conundrum will be on everyone's mind more than ever. There are concerns that under the new policy those in mixed fisheries may have their fishing effort curtailed by choke species. The demands on gear manufacturers and fishermen to develop selective gears are therefore more pressing than ever. This particular issue was raised time and time again concerning hake in Shetland and the north-east of Scotland and haddock in the south-west of England where fishermen say they are now catching the fish in huge numbers though they lack the quota to land them; under the landing obligation this could effectively prevent those fishermen from going to sea despite the fact that they may hold quota for other species in the area.

Despite the need for innovative new ideas and approaches to gear technology it is not a straightforward process. "In the past it was relatively easy for fishermen to make modifications to gear and trial them at sea on their own. They could find out what worked, what didn't and then refine gear until they had something that suited their particular needs. However factors such as the quota system and days at sea limitations mean that skippers are now under pressure to make the most of every trip, the time that used to be available for testing a new idea simply isn't there anymore," explains Mike who has witnessed first-hand the way the industry has changed.

"Design and development can be a costly process, especially if the gear doesn't work as expected, so many fishermen just aren't willing to take the risk which is understandable," says Mike, "Unfortunately this means that innovative ideas may be overlooked or never explored which is a real shame. Much of the theory is already there; we know how to increase selectivity and how certain species behave. The issue – and the bit that takes time – is refining methods to suit a particular gear type, vessel or fishery. There is no one-size fits all approach and that's why we need the input of fishermen from all sectors."

"Much of the knowledge and principles behind improving selectivity already exist. The difficult part is refining methods to suit a particular gear type or fishery."

Trawl Gear Technology Training with Seafish

As Gear Technologist for Seafish, Mike is tasked with running Seafish's Trawl Gear Technology Training course. Training takes place at the North Sea Centre in Hirtshals, Denmark, which is operated by the Norwegian institute SINTEF. A 30m long flume tank is used to trial fishing gears using extremely accurate scale models and can be used to collect accurate information on the behaviour and efficiency of trawl doors, the drag generated by gear (which is directly related to fuel consumption) and methods of fine tuning both single and multi-gear rigs to optimise catching efficiency.

"The course is the only one of its kind," says Mike, "We focus on all aspects of trawl gear rather than any one specific type of gear however we do cater each session to the members of the group we have at the time. At Hirtshals we are able to cover the fundamentals of trawling from the important points regarding rigging and set up to information on increasing selectivity. Although these guys are professional fishermen, being able to see first-hand fishing gear in action and how it behaves underwater is an invaluable tool, almost everyone is surprised when they see how small gear modifications can have a drastic effect on their fishing."

Using the flume tank it is possible to make very accurate calculations and to observe the often unexpected results of changing the way trawl gear is set up.

"Trawl doors is a favourite topic for the skippers as it seems that there is more misinformation about trawl doors than any other aspect of the fishing industry," says Mike, "We're able to investigate – and solve – some

"Fishermen leave Hirtshals armed with new information that they can easily apply to their own gear."

of the most common problems fishermen encounter with trawl doors such as heeling in, falling down, and pitching up. The fishermen leave Hirtshals armed with some basic calculations, using measurements that are readily available to them and easy to apply to their own gear. We do this using a scale model of the gear the fishermen use on their vessel to replicate the issue and then work together to find a practical solution."

However, as an ex-fishermen himself, Mike is keen to point out the limitations of the technology available; "We will never reach a point in fishing were the natural environment can be recreated in an artificial setting, gear must always be trialled at sea. It is important that this kind of off-site research works in parallel with trials at sea with real fishermen, there really is no substitute for that."

A task every fishermen knows too well...

Fishermen observe a triple sole rig in the flume tank at Hirtshals, Denmark

A Unique View

In the past four years more than 200 UK fishermen have attended the Trawl Gear Technology Training course, these fishermen have come from a wide range of sectors ranging from under 10m vessels using light sole rigs in the south-east of England to over 30m whitefish trawlers from the north coast of Scotland. Given the increased pressure on fishermen to make the most of every day at sea, training courses at Hirtshals give skippers a unique opportunity to test, modify and refine fishing gears in a controlled environment. Perhaps most importantly the training gives skippers a chance to take home information that may allow them to make positive changes to their fishing.

Trawl Gear Technology Training at Seafish is supported in part by the European Fisheries Fund. Mike runs five or six course per year each taking between 10-14 fishermen who all use similar gear types in order to ensure that emphasis is placed on the relevant gear type. For more information on upcoming courses please contact Mike Montgomerie using the Seafish website or get in touch with your local Producers Organisation.

Resolving Conflicts

As an island nation we have long relied on the sea for a variety of resources but competition for access to the sea has never been higher. With oil and gas, offshore wind, aquaculture and fishing interests all competing for limited space on the seabed, at some point there will be overlap. Interestingly, however, this year's survey showed that in most cases fishermen are less concerned about competition from other industries than they are about conflict with other fishermen.

During this year's survey one of the most common difficulties experienced by fishermen on the west coast of Scotland was gear conflict. The fleet here is made up of a mix of trawlers and creelers focused primarily on catching Nephrops for export to European markets. According to some fishermen in the area gear conflict is impacting the financial performance of their businesses and in some cases has even led to deliberate acts of gear vandalism. Trawlers in the area are concerned about the expansion of the static sector and the increasing length of creel fleets which render large areas of the seabed unfishable for those using mobile gear; on the other hand, some creelers find that gear loss to trawlers can cost them thousands of pounds each year.

As a result of increasing conflict between fishermen the Scottish Government has recently formed a gear conflict taskforce with the aim of helping the opposing sectors co-exist for the benefit of the industry.

The taskforce will carry out an assessment of current inshore fisheries management arrangements and will work closely with industry members in an attempt to reduce the risks of tensions arising. The Government has also recognised that conflict between sectors is best resolved at a local level and without the formal intervention of public agencies. Speaking about the move in a Scottish Government press release, Scottish Fisheries Minister Richard Lochhead said "There is no silver bullet and no easy solution when tensions spill over. Conflict is thankfully not the norm but needs to be addressed when it arises. My preference is for industry to work together and deal with it locally when it arises. Key to this is improving communications on all sides, and if necessary we will do what we can to help the industry in this process."

Many of the fishermen on both sides of the conflict see this as a positive step and hope that by working together it will be possible to build a more cohesive industry. There is a willingness to work together for the overall benefit of the industry and optimism that some of the issues mentioned here can be addressed in the near future. All Scottish fishing businesses are invited to participate in the work of the taskforce by completing a short survey, all responses will remain anonymous and will help the task force develop a better understanding of where and why conflict arises. For more information visit the Scottish Government website.

Stacks of pots on Newlyn harbour

The South Devon IPA

The South Devon Inshore Potting Agreement (IPA) is one of the oldest spatial agreements in UK fisheries. Covering around 450km^2 the IPA is seen as a successful example of fishermen working together in order to minimise gear conflict between the static and mobile sectors.

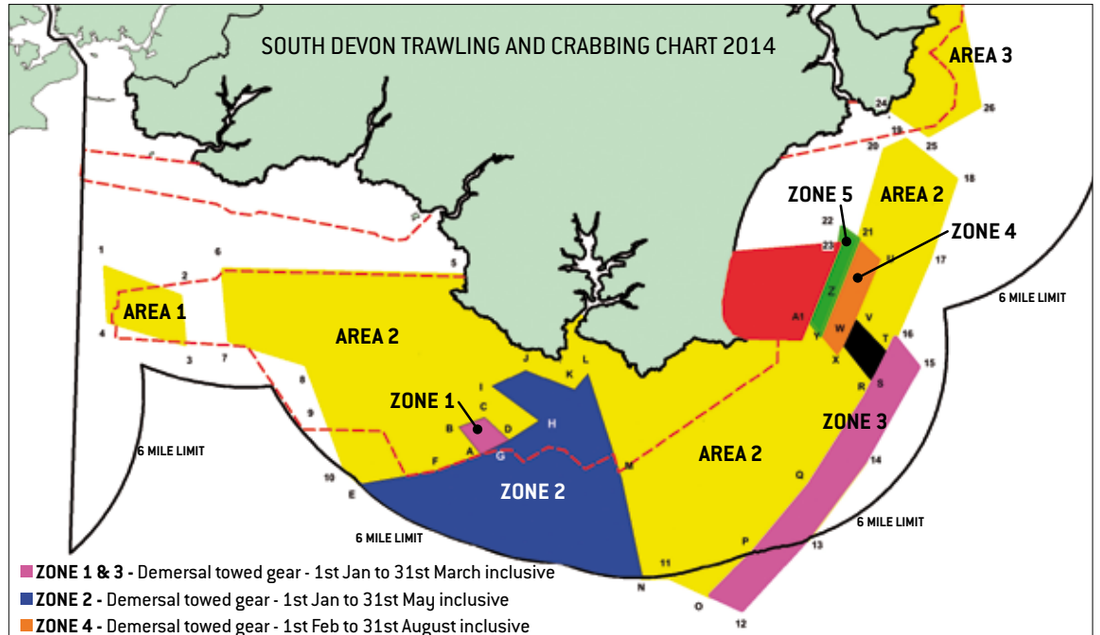
The agreement is seen by many fishermen as key to minimising conflict and ensuring that the fishery is used sustainably, it now involves around 70 vessels and several hundred fishermen.

The IPA started life as a gentleman's agreement made shortly after the Second World War whereby the area was divided into a series of fishing zones. Some zones were considered potting only, some open to mobile gears and others subject to seasonal closures. This gentleman's agreement was designed primarily to protect potters who were beginning to lose gear to scallop dredgers and trawls. In the early 1990's the agreement was enshrined as a licence variation meaning that what had previously been an informal agreement between fishers was now backed up by legislative powers and compliance with the agreement was a prerequisite to fishing in the area.

As part of this report we spoke to Brian Pawley, honorary secretary of the South Devon and Channel Shellfishermen's Association (SDCSFA) about the IPA.

"The South Devon area boasts some of the UK's most productive crab fishing," says Brian, "This prime fishing ground produces over 3,000 tonnes of crab each year and is an extremely important part of the inshore fishing sector, particularly for potters. This led to some level of conflict as fishing gears became more advanced and fishermen using mobile gears, such as rock-hopper trawls and more robust scallop dredges, were able to move on to ground that had previously been considered too rough."

"Nowadays both the mobile and static fishermen come together once a year in a meeting chaired



"Relationships between fishers are very good and now people can see the real benefits the Inshore Potting Agreement can offer all sides of the industry."

by the MMO and Devon and Severn IFCA to discuss the IPA and make agreements for the coming year," Brian explains, "This means that everyone has a chance to have their opinion heard and it helps us work together despite our different interests. Relationships between fishers are very good in the area, admittedly there have been ups and downs but the agreement has been in place for so long now that everyone can see the positives and we all respect the regulations inside the IPA."

The IPA was initially set up to prevent the loss or damage of static fishing gears, however, the regulation of mobile gears in the area has had a range of positive benefits for both sides of the industry.

"There is no doubt that the protection afforded to crab and lobsters under the IPA has had a positive effect on all marine life in the area. Crab fishing in the area is first class and the scalloping is also extremely good, in fact some scallop fishermen believe that the IPA benefits their fishery by allowing scallops to breed, develop and seed the surrounding areas. The seabed is in pristine condition so the area is a haven for a huge range of marine life and this has a positive impact on other activities such as fixed netting and recreational sea angling," says Brian, "Much of the IPA lies inside the six mile limit however part of the area does protrude past six miles, this section of the IPA is still respected by both UK and French vessels using mobile gear. I think the fact that fishermen respect the regulations of the IPA outside of the six mile limit is a testament to both the success of the agreement and to the working relationships that exist between the fishermen who work along the South Devon coast."

In recognition of the success of the agreement, South Devon crab caught in the IPA are now one of only two species to achieve both Marine Conservation Society (MCS) and Marine Stewardship Council (MSC) recognition as a sustainable fishing industry and source of high quality seafood.

"The protection afforded to crabs under the agreement has had a positive effect on all marine life in the area and has greatly benefited the industry as a whole."

Preparing pots for the next trip.

Working Together

The South Devon IPA presents a site specific example of what can be achieved when fishermen work together and these principles could be applied to other fisheries that experience conflict between sectors. Admittedly there is no one size fits all remedy to complex issues such as gear conflict but the South Devon IPA shows that with strong, impartial leadership and cooperation, solutions to difficult problems can be found at a local level. After almost 70 years the IPA is strongly ingrained in local culture though the SDCSFA admit that there have been ups and downs, particularly in the early stages of developing the agreement, as with any change the first step is often the hardest.

The key is preventing tensions from arising in the first place and it is hoped that the Scottish Government taskforce - with the input of local fishermen - can help resolve ongoing gear conflict issues on the west coast and prevent further instances of conflict in the future.

Learning The Ropes

Fishing is a big employer in the UK with just over 12,000 commercial fishermen throughout the country. To maintain the industry it is important to provide training and opportunities for the next generation of fishermen to develop skills and help secure their careers.

During this year's fleet survey, skippers across the country described difficulties finding crew and many are worried that there is a lack of newcomers to the industry. In their view there are a number of barriers to entry for youngsters wishing to join the industry namely associated with high capital investment costs and difficulties acquiring licences and quota which are strictly limited. Other barriers summarized in a Scottish Government report on conditions affecting entry into the Scottish fishing industry include lack of industry exit preventing new opportunities from arising, expected returns on investment and acquisition of skills and knowledge. Increased funding for training of both new entrants and existing fishermen over the past few years is helping many to overcome some of these barriers.

Learning basic life saving skills is essential for all new recruits.

Employment in fishing has been declining in recent decades and according to MMO data there are currently only about a quarter of the number of employees there were in 1938. Historically this is mainly due to technological advances, as one Welsh fisherman commented "When I was young, the work was much harder, more physical and you needed more men to work the boat". Catching sector employment has continued declining in recent years; however the average number of jobs per vessel has stayed largely the same, suggesting that the change is probably due to reduced fleet size. According to the MMO, since 1998 the number of fishermen across the UK has fallen by around 30%, the change has been most pronounced in Wales where employment in the catching sector has more than halved in 15 years. However the industry also supports thousands of onshore jobs including engineering processing and retail and is a vital part of the wider food and drink industry across the UK.

The Maritime and Coastguard Agency (MCA) requires that all fishermen undergo mandatory safety training. The training ensures that all commercial fishermen understand the risks associated with their job and know what to do in an emergency. Working in conjunction with the MCA, Seafish has developed courses to provide both newcomers and experienced fishermen with the training required by law free of charge.

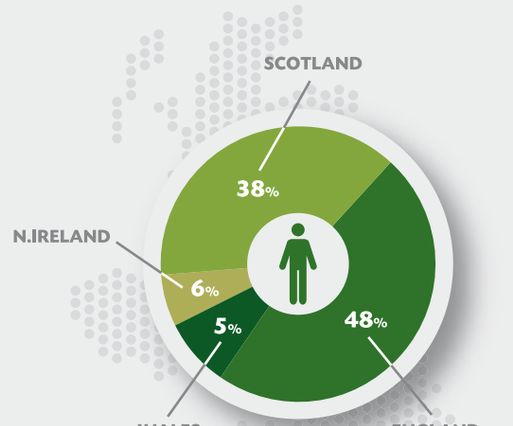
Seafish encourages fishermen of all levels to undertake training beyond minimum legal requirements ensuring they are always up-to-date with safety information and procedures. Under a funding package from the Department for Transport, the MCA, the European Fisheries Fund, Seafarers UK, Trinity House and the Scottish Fishermen's Trust, there is currently funding available to provide places on various training courses throughout the UK until 31 March 2015.

For fishermen wishing to undertake further training Seafish has developed voluntary courses which are delivered by 19 Approved Training Providers located throughout the country. These include three short courses linked to the Under 16.5m Skippers Certificate in navigation, engineering and stability awareness as well as the Trawl Gear Technology Training at the Sintef Flume Tank in Hirtshals, Denmark. A three week introduction to commercial fishing course and sea fishing apprenticeships are also available for those at the beginning of their fishing career. In 2013 a total of 8,290 training courses were delivered throughout the country to fishermen at different stages of their careers.

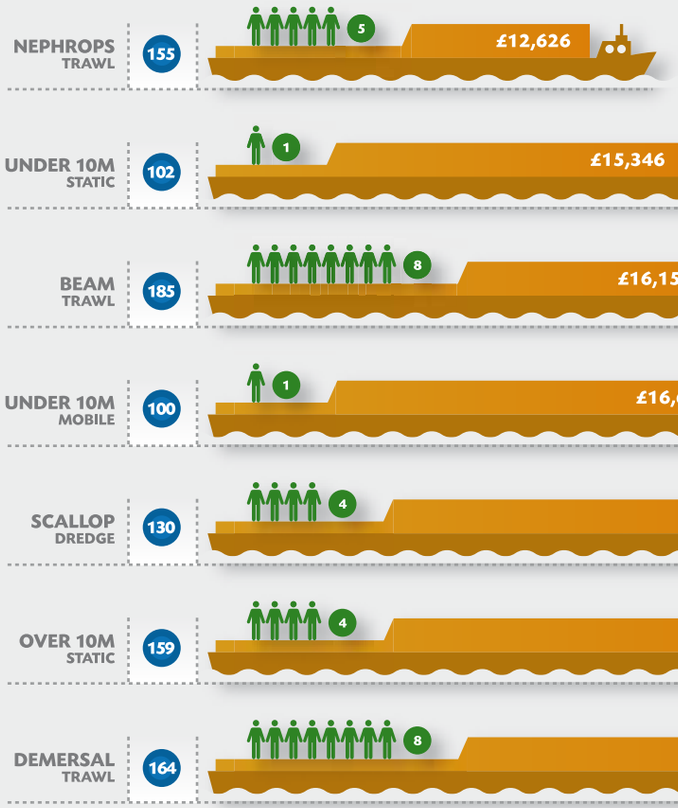

Fishermen at all stages of their career are encouraged to undertake training and keep up-to-date

UK CATCHING SECTOR EMPLOYMENT AND SALARY 2012

UK FISHING FLEET MAKE UP BY COUNTRY



Full Time Employees
Average Days at Sea Per Year
Average Wages Per Full Time Employee



Sources:
MMO: UK sea fisheries annual statistics 2013 and Seafish: fleet economic performance datasets 2013

Student Testimonials

We spoke to some of the students enrolled at the Whitby and District Fishing Industry Training School about their learning experiences and the value of their training.

Chris Higgins:

"I decided to study the Level 2 Diploma in Maritime Studies because I liked the idea of gaining both practical and theory based training. Over the last 6 months the school has given me the opportunity to gain maritime skills and practical experience on a variety of fishing vessels.

The training school provides the perfect balance between education, extra-curricular activities and free time. The school, staff and education are all amazing!

I've not decided what job I want when I graduate next year, but I'm sure that having a portfolio of 12 certificates and a logbook of over 1500 sea going hours will help secure a permanent job in the maritime industry."

Mark Wilkinson:

"Sea Fishing has always been a massive love of mine and I felt that doing formal training would really cement my understanding of the industry.

What I enjoy most about the course is the diverse range of modules available and the ability to really consider and learn new material, especially when participating in the practical based Seafish courses such as the Basic Sea Survival and Basic First Aid. Over the last few months I've begun to realise how valuable the safety training really is and how important it will be for my career in the industry

The diploma has so much to offer from general seamanship, communications (radios), bridge watch-keeping, navigation or even engineering, there's something for everyone!"

Nathan Williamson:

"The Level 2 Diploma in Maritime Studies gives you so many career options. I hope to stay in the sea fishing industry once I complete my course. The practical skills developed on the course certainly help when going on board your vessel for the first time. I feel that this course is perfect for getting a balanced view of how the sea fishing industry really works.

The teaching is up to a standard that you would expect at such an establishment. Because the fishing school is relatively small this means that course instructors can spend more time speaking to each of us."

Mandatory safety training arms fishermen with the skills to respond in emergency situations

The Next Generation

Employment in the catching sector has been declining for a number of years, historically because of mechanisation and more recently because of the reduced fleet size. Many fishermen are concerned at the apparent lack of youngsters in the industry and recognise that there are a number of barriers preventing newcomers from joining. Providing training opportunities is essential for allowing newcomers to join the industry which then opens up further training and employment opportunities for individuals wishing to pursue their fishing career further.

There are various options for fishermen to undertake training at any stage of their career and fishermen can choose from a number of topics. With 19 Seafish Approved Training Providers located throughout the country (including some of the islands) there is something for everyone. To widen access to learning, Seafish has secured funding to deliver places on training courses until 31 March 2015. More information on training and funding can be found on our website or by contacting the training schools directly.

Safety at Sea

"Safety standards have improved enormously over the years, but we still have a long way to go. We need to see an industry wide behavioural change to prevent unnecessary loss of life"

Frankie Horne,
RNLI Fishing Safety Manager.

Fishing is the most dangerous peacetime career in the UK. In the last 10 years, over 3,000 accidents have occurred at sea claiming 210 vessels and sadly also the lives of 98 fishermen. We spoke to Frankie Horne, Fishing Safety Manager for the Royal National Lifeboat Institute (RNLI) about safety issues in the industry and how standards are changing. Frankie, a fisherman himself, has been volunteering with the RNLI for 22 years and has been Fishing Safety Manager for six years; he has first-hand experience of changes in the industry.

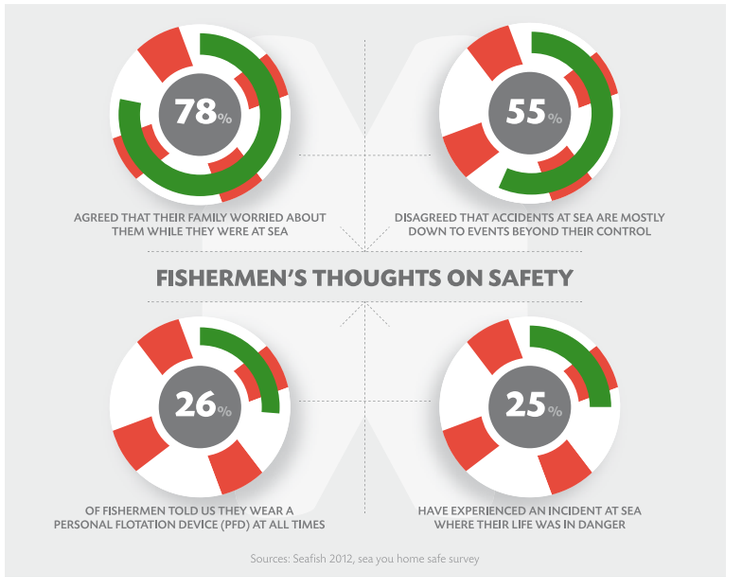

The RNLI hopes that PFDs will become a normal part of fishing

No one understands the safety issues better than the fishermen themselves and the RNLI have been working closely with industry members to develop guidance "We engage directly with fishermen who know best what changes are viable for their vessel, this really gets them thinking 'what are we going to do about this' instead of having people come in and tell them what to do."

According to a 2012 Seafish survey 25% of fishermen in the UK claim to have been involved in an incident at sea which has put their life at risk, a shocking figure. The RNLI respond to all sorts of incidents around the UK and the Republic of Ireland "Incidents range from injuries like a broken leg to more extreme cases that can result in fatalities." Common incidences at sea include fires, man over board and capsize "We find that accidents like man overboard can be dramatically reduced by simple actions like keeping a tidy deck. Capsizes, most common amongst vessels under 15m, are often caused by vessels taking on water because they are overloaded or weather conditions are dangerous, they are the most common cause of fatalities at sea." When a vessel capsizes, there isn't much time to respond and once the process has begun, little can be done to reverse it.

Since 2013, Personal Flotation Devices (PFDs) have been distributed to fishermen across the country with support from Seafish, Seafarers UK and the

"In the 35 years I've been fishing safety standards have improved enormously, but we still lose lives to the sea every year unnecessarily."



European Fisheries Fund. One of the biggest barriers to overcome is with fishermen who have traditionally risked not wearing PFDs for various reasons, which is why Seafish launched the Sea You Home Safe campaign in 2014, encouraging fishermen to wear their PFD whilst at sea. "There has been high demand for PFDs across the country. We're in the midst of a generational change, and fishermen are really taking safety seriously. There are guys who've never considered wearing a life jacket telling us they are wearing their PFDs all the time at sea. We want to see everyone wearing them and really engaging with safety issues and putting their awareness into practice."

Training is the main channel for getting fishermen thinking about improving safety on their vessels "Fishermen are now getting trained early and they're getting the facts before they go to sea, which is crucial. What we need is for them to put those changes into action when they're on board." The Fishermen's Safety Training courses are designed to raise awareness of safety issues and give fishermen the skills

"The mandatory safety training makes a big difference to people's perceptions of safety."


Fishing is the most dangerous peacetime occupation in the UK

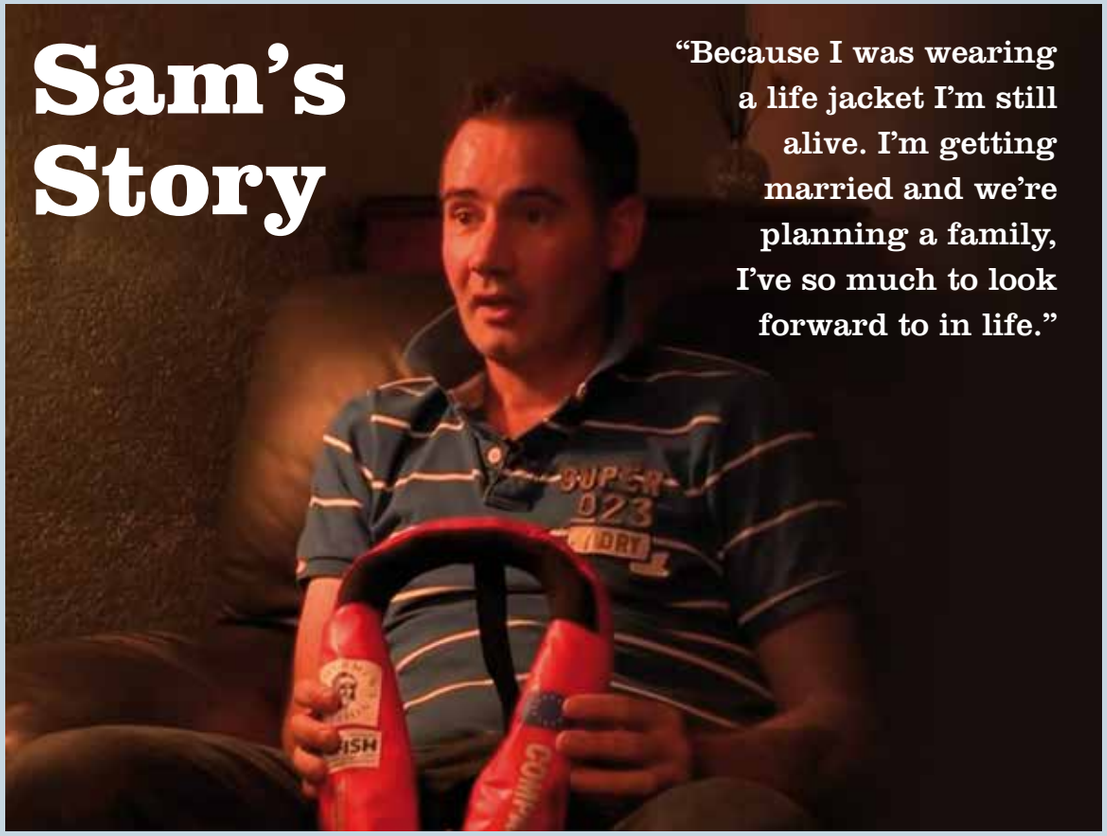
to respond when accidents do occur. "The mandatory safety training has improved greatly in recent years. Instead of sitting through hours of lectures it's much more involved and interesting and contains practical sessions in emergency procedure, it's making a big difference to the way people think about safety and getting engaged with the issues."


In an emergency there may not be time to retrieve life saving equipment, PFDs are only effective if worn while working at sea.

Finance has a big role to play and unfortunately safety can be compromised when times are hard. "When fishermen are short of cash they tend to scrimp on safety, and often vessel maintenance is neglected because they don't have the cash to spare. If fishermen are presented with a choice of investing in new gear or investing in safety measures, 99% of the time they will choose the gear because it is essential for them to carry on fishing; they often delay investing in safety until they're more comfortable financially. That's why providing both PFDs and training free of charge is so important."

"No fisherman should have to compromise their safety because they are struggling financially"

Sam's Story



"Because I was wearing a life jacket I'm still alive. I'm getting married and we're planning a family, I've so much to look forward to in life."

The number of accidents at sea has been declining year on year in recent times. While some accidents are unavoidable, simple measures can be taken to prevent loss of life. Basic safety training has given individuals the knowledge and skills to help them to respond to accidents when they do occur. The Sea You Home Safe campaign aims to reduce further unnecessary loss of life at sea and is part of Seafish's commitment to improving safety standards in the industry. Sam Cully (35) from Portavogie tells us the incredible story of how wearing his PFD saved his life.

Sam has been fishing off the coast of County Down in the North Irish Sea for 20 years and the 18th September 2013 started like a normal working day. Conditions at sea were rough with force five to six winds when Sam's vessel, Speed Bird, got into difficulty.

"The boat was going very slow, on autopilot when I noticed there was some water around my feet. I activated the bilge pumps and went outside to check they were working, at that point I didn't think it was anything too serious and I certainly didn't think my boat was going sink." The vessels alarm failed meaning that Sam didn't realise until it was too late how much water his boat was taking on "The alarm wasn't going and so I thought it was just surface water on the deck but when I went back into the wheelhouse I saw that the water level was rising rapidly."

Fortunately Sam was wearing a PFD which he had received for free, just a month earlier. "It's so lightweight I was able to wear it while hauling creels, no different from wearing a jumper." From this point on Sam barely had time to send out a mayday before abandoning ship and was unable to retrieve his other lifesaving equipment from the flooded compartments.

"It all happened very quickly, within the space of 2-3 minutes, all I had time to do was give my position to the coastguard and abandon ship before the boat rolled over."

Sam's PFD inflated automatically as he hit the water but he was alone and miles from shore. The Portaferry Inshore Lifeboat (RNLI) responded immediately to Sam's distress call but he spent the next 50 minutes in the water fighting freezing temperatures and fatigue while they searched for him "I gave myself up to the sea and remember thinking to myself I can't do it anymore, that's the moment when I heard a splash and felt two hands around me, the next thing I knew I was in the lifeboat."

Sam had received his free PFD under the grant-aided scheme run by The Fishermen's Mission and supported by Seafish. "Before then I'd never have worn a life jacket while at sea, so I guess I owe my life to the people who gave it to me. These days I always wear it at sea because you just never know what can happen" A number of organisations including the Department of Agriculture and Rural Development, the European Fisheries Fund, the RNLI, MCA, local Fish Producer Organisations, Asda Supermarket and a host of others provided funding and support and collaborated to make the development and delivery of thousands of free PFDs possible which have already saved lives.

We aim to provide every UK commercial fisherman with a free PFD

Raising the Bar

Commercial fishermen are on the front line of the seafood industry, they are our last hunter-gatherers and with that comes great risks. Safe fishing practices are vital to ensuring a sustainable and prosperous future for the industry as well as the families and communities that rely on it.

Fishing safety standards have improved greatly in recent years. Seafish work alongside RNLI, MCA and various other organisations and are committed to raising awareness of the safety issues associated with fishing. Providing mandatory safety training, to give individuals the skills and knowledge to respond in an emergency situation as well as providing free life saving equipment have further improved safety standards.

But this is not enough.

To further reduce UK commercial fishing accidents and unnecessary loss of lives at sea, it is crucial that our fishermen are equally committed to changing their habits across the board. As Frankie explained "we need an industry wide behaviour change". There has never been a year when no fishermen have died. Let's all commit to achieving this. To lose even a single fisherman in a year is unacceptable.

The Business of Fishing (Revisited)

In 2013 Seafish made a short film called the Business of Fishing which aims to improve people's understanding of the UK fishing industry by showing some of the day-to-day and strategic challenges that fishing vessel owners face and how they overcome those challenges. The video shows the industry through the eyes of four different vessel owners from different fishing sectors and regions of the UK, one year on we revisited the four vessel owners involved in the film. The full film can be found on the Seafish YouTube channel.

Name: David Stevens

Vessel Name: Crystal Sea

Length: 21m

Gear Type:
Twin rig whitefish trawl

Target Species:
Whitefish
(25-30 different species)

Home Port: Newlyn

In the film you talked about long term planning, have you been able to stick to your plans?

Yes we like to plan well ahead. I'm not looking at changes that are occurring this year; I'm looking at changes that will be coming in 3-5 years. A good example is the landing obligation; we know it's coming so we have already been working very hard to prepare for it. We've changed our fishing behaviour and our gear and managed to reduce our unwanted haddock catch by more than 40% and almost eliminate the catch of juvenile fish. The landing obligation is obviously still a concern but I feel like we are better prepared now. It's been hard work but fishing is a team effort, the crew and I have all put in the time and I know the effort will pay off come 2016.

We're already involved in a catch quota scheme and have CCTV on board Crystal Sea to monitor all of our catches. I think the two things we need the most are more data and more trust in fishermen, I hope things like the catch quota system and on-board cameras might help data collection and allow policy makers to react more quickly to things that are happening on the ground.

You write a very interesting blog at crystalseafishing.co.uk about your fishing, does that get a lot of interest?

The blog gets a lot of interest and we've had a lot of positive feedback which is great! People are interested in what we're doing and it gives people a chance to see what we do at sea and where their fish comes from.

What are your thoughts on the future of the industry?

Overall I am optimistic about the future. One of the biggest shifts we have seen is the increased use of technology and that has been great for us. We use the Plymouth Trawler Agents online auction system and that has had a huge impact, our products are now offered to a much wider audience and to European markets directly, it really has been integral to our business. We've also started seeing social media play a more important role, it has helped us establish links between ourselves and our buyers and it's really improved the market. Admittedly there are big changes coming but like I said we try to look around 5 years ahead and I feel like we are working extremely well, so I'd say in general I feel pretty good about the future!

Name: Neil Prentice

Occupation:
Shellfish merchant and retired fisherman with shares in two Nephrops trawlers and one creel boat

Target Species:
Nephrops and other shellfish

Home Port: Tarbert

In the film you discussed the way your business was split between UK and export markets, has this changed at all?

In the past around 90% of our produce was exported to Spain, however we have seen a shift in demand and now we are actually selling more shellfish at home than we are exporting. We mainly supply Nephrops but we process all kinds of shellfish including crab, lobster, whelks and scallops to name a few, we're certainly seeing an increase in demand for those products in the UK market. Sometimes we are even struggling to keep up with the demand. Now that we've been here for more than 12 years people know us and I think our reputation has actually helped increase demand.

In the film you mentioned that quotas, fuel costs and days at sea allocations were the major factors affecting the performance of your business, is that still the case?

Fuel and days at sea limitations are still our main concerns. Admittedly fuel prices have dropped a bit recently but they are still a high proportion of our running costs. We operate dedicated prawn boats so quota isn't that much of an issue, things would be more difficult if we were targeting whitefish. At the moment we are getting by but more cuts would definitely cause problems, It's out of our hands though, it really depends how things go in the December negotiations each year.

What are your thoughts on the future of the industry?

Overall things seem good and I'm positive about the future. The demand for high quality seafood in the UK market is growing. We definitely felt the effects of the economic recession in Spain when we were exporting the majority of our products so we're very happy to see the UK market growing; it provides us with a bit more stability. I'm getting older now so I've been easing off a little but I've been in the industry for nearly 40 years, it's in my blood, we'll be here for as long as we can be!

Name: Iain Harcus

Vessel Name: Aalskere

Length: 34m

Gear Type:
Single rig whitefish trawls

Target Species:
Whitefish and squid

Home Port: Peterhead

In the film you highlighted fuel costs and quota as the two major issues facing your business, is this still the case?

Fuel and quota are still by far the biggest issues. I think we have already done all we can to improve fuel efficiency without jeopardising our fishing. Stocks have been so abundant this year that we have actually had to be very careful with our fishing or we'll exhaust our quota early. To help deal with this we've spent a bit less time in the North Sea and moved to Rockall to target non-quota squid. We also did some guard duty work for an oil company to take us away from the fishing for a while, that has helped relieve some of the pressure we're under with regards to quota.

Are you still finding that fish stocks are extremely healthy in the North Sea?

Stocks still seem very good; we've had some excellent fishing recently. That in itself causes its own problems. We're part of the catch quota and no cod dumping scheme so we need to avoid certain species. Quota restrictions this year have led to a shortage of haddock in this area and many of the processors have been struggling. The stocks are there, the demand is there but unfortunately the rules say we can't land them.

Looking ahead the flourishing fish stocks could also cause problems under the landing obligation with choke species, especially coalfish and hake. My biggest concern is going out and bringing in a haul of 800 box of coley and we have no quota, what do we do then? What about the other species that we do have quota for? It's a worrying time for everyone and there is still a lot of uncertainty.

You mentioned in the film that you thought you were seeing the "demise of the fishing industry", what are your thoughts on the future of the industry now?

Sadly I think we are still seeing the demise of the fleet, there's simply not enough quota to go around. Most guys are struggling now so we're certainly going to struggle with more cuts and the landing obligation. Lots of guys are already fed up with the amount of restrictions we're under and many are leaving the industry for good. It also means that no young guys are getting into fishing, there's no stability at the moment and that's a real shame. I'm actually a bit less optimistic about the future now than I was before. That said the fishing has been good the past few years and the prices have been good so there are some positives there.

Name: Chris Harvey

Vessel Name:
Predator

Length: 9m

Gear Type: Pots

Target Species:
Crabs and Lobster

Home Port: Selsey

In the film you mentioned that you were worried about the lack of youngsters entering the industry, is that still a concern and how do you think youngsters can be encouraged to join the industry?

Absolutely, there's not much of an industry here in Selsey really; my brother and I are probably the most recent entrants so it is still shrinking. There is some reasonable fishing to be had, the crab and lobster fishery here has been well managed and it is sustainable as we have worked hard and introduced things like escape hatches on our pots. However the price we get for our catch is actually lower than it was 20 years ago and the price of gear, fuel and bait has increased dramatically. Youngsters look for stability so I think new entrants into the fishing industry needs better prospects and more support if they are to start fishing.

You highlighted sustainability as a key issue in the film, is that still the case?

Sustainability is still a key issue for all fishermen. Some fisheries here have been managed extremely well but management measures can sometimes cause problems. Restrictive quotas and bans on landing some species in this area have resulted in fishing effort being displaced into other fisheries. For example, quota restrictions meant that we couldn't fish for rays anymore and as a result more guys end up fishing for whelks. That increased pressure can make certain fisheries less sustainable and also pushes the price of our catch down. The key is diversification, we move on to different species depending on the weather, quota availability and what's fishing well at that time; spreading the effort is much better than everyone trying to do the same thing.

What are your thoughts on the future of the industry?

I'm still optimistic, the future looks good. Sometimes I'm extremely positive but other days I do worry about the future, particularly looking at the lack of young guys entering the industry. The problem really is the cost of starting up; losing potting gear can ruin a whole season for us so you can imagine what that would be like for someone just starting out in the industry. Overall though I am still confident and think things look good, in my opinion the most important point is still to get younger guys through the door!

Seafish Economics Team and How We Use Your Data

At Seafish, our purpose is to secure a sustainable, socially responsible, and profitable future for the UK seafood industry.

Seafish aim to improve marine and fisheries management and seafood supply chains to enhance the sustainable profitability of UK seafood businesses.

At Seafish Economics, we help achieve these objectives by providing expert, impartial and trusted economic evidence and analysis.

We produce economic outputs relating to issues such as reform of the Common Fisheries Policy, rights-based management, catch quotas, and Marine Protected Areas.

The Fleet Survey

Each year we collect data on the financial and operational performance of the UK fishing fleet. Despite being a labour intensive task the fleet survey gives the team a valuable chance to get out there and speak to fishermen directly.

One integral part of the fleet survey is the collection of financial accounts from business owners. This information allows our economists to carry out a detailed analysis of the fleet's financial performance. We intend this data to be used to enhance UK fisheries management and benefit the industry in the long run. A more detailed summary of how an individual vessel owner's data is used and how we ensure anonymity for everyone involved is shown opposite.

Benchmarking is a way of comparing the performance of your vessel with the performance of similar vessels in the fleet. Seafish are able to provide a comparison of factors including expenditure on fuel, profitability and turnover. Many vessel owners find benchmark reports a valuable tool for improving the efficiency of their business.

HOW IS YOUR DATA USED?

1

FIELD RESEARCH

Seafish researchers visit ports around the country, interviewing fishing business owners and collecting consent to view accounts.

2

SEGMENTATION

Vessels are grouped into segments by length, capacity, gear type and fishing location.

3

FINANCIAL ACCOUNTS

Seafish economists contact accountants to collect copies of financial accounts from vessel owners who have given permission.

4

SCALING DATA

Anonymised accounts are used as samples and scaled up using MMO data, providing estimates for all UK vessels. Individual information is never released.

5

DATA ANALYSIS

Aggregated data is analysed to estimate turnover, profit and expenses for all segments.

6

a) Individual benchmark reports are produced at **vessel owners** request for those who contributed accounts to the sample.

b) Data feeds into advice and reports for **industry** and **policy makers**.

REPORT PRODUCTION

If you are interested in participating in future fleet surveys please contact our data collection project manager Steven Lawrence at steven.lawrence@seafish.co.uk to register your interest.

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