

QUAY ISSUES

EXPLORING THE STORIES BEHIND THE DATA: A LOOK AT THE SEAFISH FLEET SURVEY 2015

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Ears To The Ground: Seafish Fleet Survey Findings

Since 2005, Seafish Economics has carried out an annual nationwide survey of the UK Fishing Fleet.

This year our team of field researchers interviewed over 500 individual vessel owners to discuss their business activities, the major factors affecting their financial performance and their ambitions for the future of their business.

In addition to these interviews, a major component of the Fleet Survey involves vessel owners contributing their financial

accounts. Between November and January we collect these accounts and use them to form a sample which we then use to estimate costs and non-fishing income for the entirety of the UK fishing fleet. Putting these estimates together with official figures on fishing income for every single vessel gives us an estimate of profit or loss for each individual vessel in the fleet. This is a vital piece of

work, forming the backbone of all the fleet economic analysis that Seafish produces, including this very magazine. Using these estimates Seafish Economics can provide analysis and evidence to industry and government highlighting the socio-economic impacts of proposed changes in fisheries management, which is vital when arguing the case for fishing.

The voluntary contribution of vessel owners and skippers is absolutely crucial for everything Seafish Economics does. Without this data we couldn't hope to create an accurate picture of the economic performance of the fleet and for that reason we're incredibly grateful to everyone who took part this year and in years past.

We incorporate data from the fleet register and the government's official fisheries database into our ever-growing database to show how fishing industry costs and earnings have changed during the years we have been carrying out the survey. We publish aggregated results annually in our Time Series report and Economics of the UK Fishing Fleet: Key Features report. This year's major findings included:

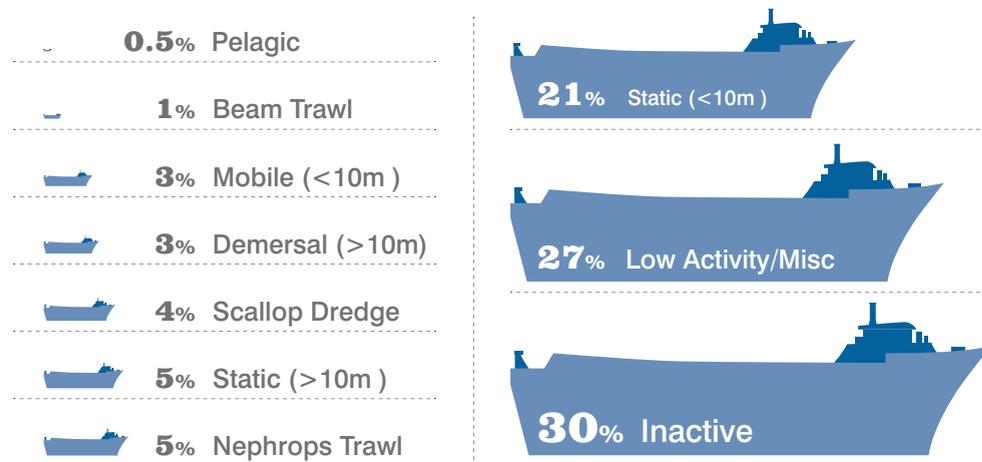
- The total number of registered UK fishing vessels decreased from 6,570 to 6,553 between 2013 and 2014. Approximately 30% of all UK registered vessels are inactive each year. Vessels can be inactive for many reasons including long-term repairs, poor health of the owner, transition between owners, etc. For whatever reason the vessel is classed as economically inactive because it does not bring in any fishing income.
- There was a 15% increase in total UK fishing income between 2013 and 2014 (from £751m to £862m). This was largely driven by a 75%

increase in mackerel landings as a result of increased quota for this species.

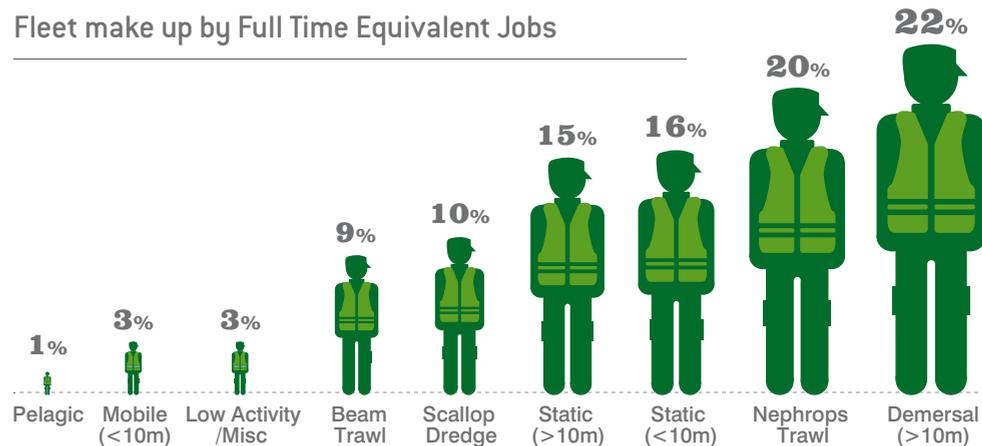
- In 2013, demersal (over 10m) vessels accounted for the highest proportion of full-time equivalent jobs at 22% of all catching sector FTEs. In recent years, spending on crew share has decreased in line with the number of FTE jobs, however from 2012 to 2013 average crew share per FTE increased by approximately 9% across the entire fleet, indicating an increase in average annual wage.
- Gross Value Added (GVA) is the sum of operating profit and spending on crew share. It is used to measure the contribution of a particular producer, sector or industry to the economy and to calculate GDP (Gross Domestic Product), a key indicator of the state of the economy. The pelagic sector, despite having the fewest vessels, generates the greatest income and therefore accounts for the largest proportion of fishing fleet GVA.

UK Fishing Fleet Structure 2014

Fleet make up by Vessel Type



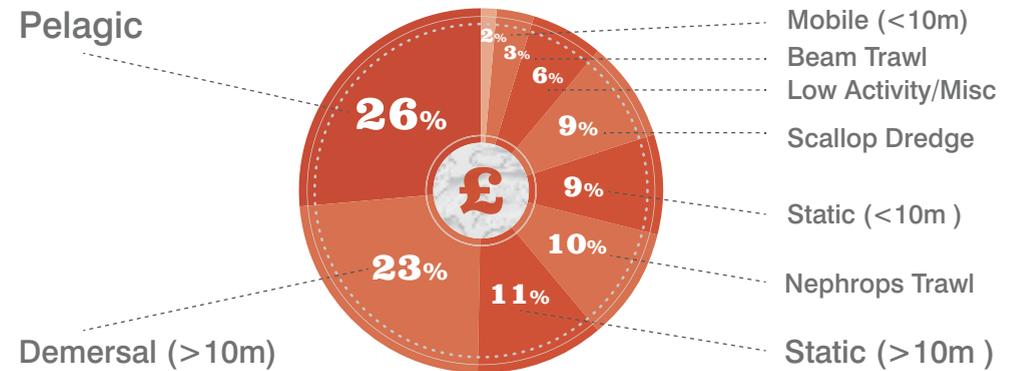
Fleet make up by Full Time Equivalent Jobs



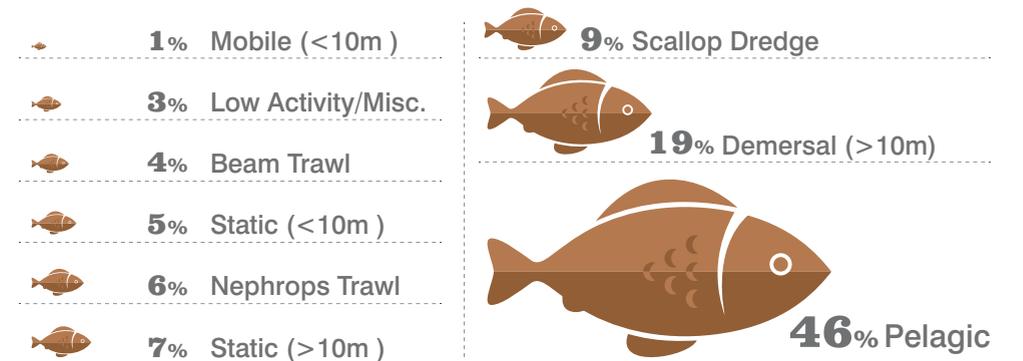
Under 10m Static: Under 10m drift and/or fixed nets / Under 10m pots and traps / Under 10m using hooks
Beam Trawl: North Sea beam trawl over 300kW/ North Sea beam trawl under 300kW/ South West beamers over 250kW/ South West beamers under 250kW
Under 10m Mobile: Under 10m demersal trawl/seine
Over 10m 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
Pelagic: Pelagic trawl over 40m

Source: Fleet economic performance dataset 2005-2014, Seafish, 2015. UK Sea fisheries statistics 2014, MMO, 2015.

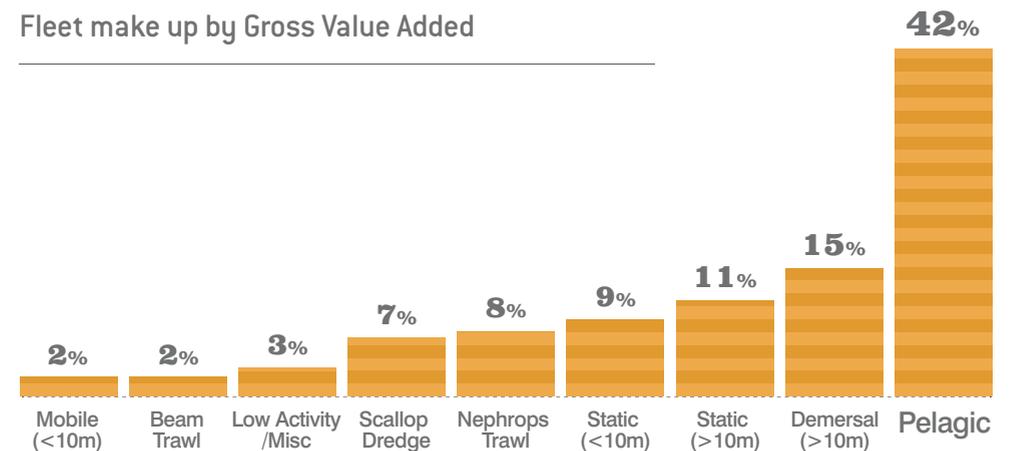
Fleet make up by Value of Landings



Fleet make up by Volume of Landings



Fleet make up by Gross Value Added





Seafish Data Working For You

Seafish Economics produces bespoke data analyses for industry and government. We are able to use our dataset in a variety of ways, investigating the performance of specific types of vessel or even the economic performance in certain areas.

Alex Gordon represents the Sussex Independent Fishermen's Group and requested bespoke analysis to provide evidence of the socio-economic impacts of a proposed offshore development on the local fishing industry. We asked Alex to explain how she used the evidence provided by Seafish Economics.

"A new off-shore wind farm "Rampion" is to be located off the Sussex Coast. Construction is to start in January 2016 and will inevitably have an effect on the local fishermen. The Sussex Independent Fishermen Group (SIFG) was formed to assist any independent local fisherman who wished to be heard challenging the proposal of Rampion. After planning consent was granted the SIFG conversed with the developers in order to create a co-existence plan and then discuss any compensation for the fishermen for potential changes to their fishing activities and earnings.

If you represent a fishermen's organisation and are interested in our bespoke data enquiry services please get in touch with Steve Lawrence at steven.lawrence@seafish.co.uk for more information.



"The SIFG contacted Seafish who quickly collated and provided us with the data from the group's earnings from 2007 to date. This data proved very useful in our conversations regarding compensation with the developers. Seafish also provided the SIFG with guidance information on how to find a strategy for discussing fair compensation. Although the developers provided the method for this themselves it enabled the SIFG to check through all their data and feel confident with the outcome."

Making The Right Selection For Your Business: Developing Gear to Reduce Bycatch

As the landing obligation rolls out across the demersal sector in 2016, vessel owners up and down the country are searching for measures to reduce bycatch. Discard rates in nephrops fisheries are among the highest in the UK, mainly because the small mesh size necessary to retain one of the smallest commercially caught species, at a typical length of 18cm, can also retain a significant amount of other fish.

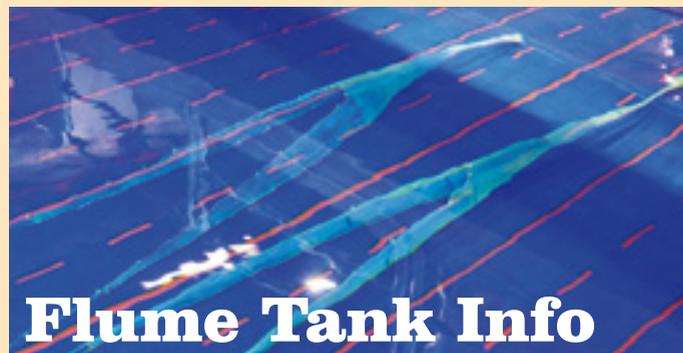
Studies on selective devices have shown that various technical measures can significantly reduce unwanted bycatch in nephrops fisheries with large square mesh panels, coverless trawls, separator panels and grids already approved and in use in some vessels. However, every business is unique and faces different challenges and therefore not all devices are suitable for all businesses. To maintain financial viability it is important for vessel owners to find solutions that work for them and when it comes to approving gear, it is important to recognise the range of challenges facing individual fishing business owners. There is no single solution to address the variety of challenges facing different businesses across the country and individual fishermen therefore have a significant role to play in the process of developing discard reduction measures.

Fishing gear and methods have been evolving for as long as people have been catching fish and today's fishermen are part of this process. The landing obligation presents a challenge for fishermen to enhance the selectivity of their gear by catching only their target species and there are various options already available on-board; however, there are also opportunities for fishermen to innovate and become more involved in developing new gear or devices to tackle the problem.

Developing selective gear is no small task. If the gear has not already been approved by the government it can be a lengthy process and depending on the scale of alterations, could incur significant costs. However, investing in innovation is a necessity for all industries and in this case, could give vessel owners the tools they need to continue fishing profitably.

Fishermen are not in this alone; there is support available to participate in research and there is funding for Seafish Gear Technology Training **[contact Mike Montgomerie]** to help fishermen learn how to make the most of their gear

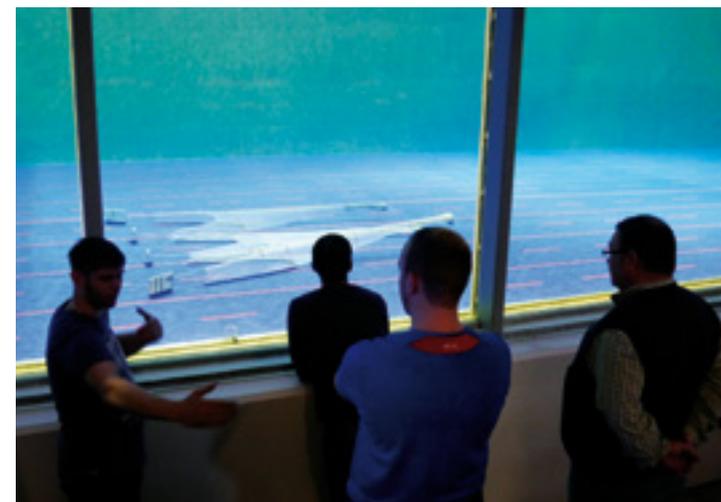
“The training courses allow them to see first-hand how minor alterations affect net performance under the water, many are often surprised by what they see.”



The SINTEF Flume Tank in Hirtshals' North Sea Centre is the second largest in the world. The tank's test section is 432m³. The tank operates a circular flow of water and the floor of the tank moves on a conveyor to simulate towing at up to 12 knots. One wall is glassed, allowing spectators to view model fishing gear through crystal clear water. A platform above the surface and cameras inside the tank provide 360° observation. Waves and underwater obstructions can also be simulated to observe how fishing gear responds.

and to discover the range of selectivity devices available. In March a group of nephrops vessel owners attended the Gear Technology Training course at the SINTEF Flume Tank in Hirtshals, Denmark, the first stage on their journey to develop highly selective gears.

Using a range of scale models of fishing gear, Seafish Gear Technologist - Mike Montgomerie - can simulate trawling in the tank to demonstrate how alterations to gear set-up and design affect net performance. “Fishermen are the only professionals who never see their tools at work”, says Mike.



After covering the basics of net geometry and setup, Mike demonstrated various selectivity measures including coverless and low headline trawls, square mesh panels, large mesh top panels, grids and separator panels to show the range of possibilities available to reduce unwanted bycatch and discards. “When the discard ban comes in, fishermen are going to have to make sure that their gear is operating as efficiently as possible, making the most of their time at sea and maintaining economic viability. Attending the course has armed these fishermen with the knowledge of how to reduce discards, with the smallest possible financial impact”, says Mike.

The training course provides an opportunity to learn about the selectivity measures available and how to enhance efficiency. “I've learned a lot about how gear performs when being towed and some of it was quite surprising”, says Phil Reid, skipper of the MFV Amity II. “You'll always have an idea of how your gear behaves, but

until you've actually seen it you can never be sure. Every tow we're aiming to maximise our catch because we're so restricted by days at sea, we don't have a lot of freedom to experiment when our crew depends on the haul for their wages. After seeing the changes demonstrated here in the tank I have a better understanding of how set-up affects net geometry and I have the confidence to make alterations to gear set-up next time I'm at sea. With this information we'll be better prepared for the landing obligation.”

Trialling gear at sea can be a risky business as Charles Bruce, owner of MFV Challenger explained, “If you make alterations at sea that don't work out, you end up wasting hours of towing and that's not just the profit from the catch you lose out on, you're also paying with fuel and with your days at sea. There are a lot of costs involved with trialling at sea and therefore a lot of risk, which you can't always afford to take when you have crew to pay and expenses to cover.”

Current regulations can also limit the extent to which fishermen can trial new gear. If gear has not been approved by the government, special dispensation is required, potentially limiting fishermen's freedom to explore the possibilities. “The rules are too rigid”, says Charles. “To be more selective and remain financially viable we need more flexibility and freedom to diversify. For example, guys with quota could use two cod ends, towing TR1 and TR2 gear, catching fish in one and prawns in the other, but current regulation doesn't allow it.” Selective net designs incorporating separator panels and multiple cod ends of different mesh sizes are currently in use in some Norwegian nephrops fisheries and have been shown to significantly reduce discards, while maximising nephrops and high grade fish; however, gear of this kind is prohibited under current UK regulations and as Mike explained, “Fishermen would need some flexibility on the technical rules to allow them to trial these new ideas which could help maintain profitability while reducing discards.”

Key to the task of reducing discards is that fishermen's knowledge and experience is recognised and they are encouraged to participate in the process. Jimmy Buchan, owner of MFV Amity II explained why this is so crucial, “People are scared of change because they've had so much forced on them in the past that just didn't work, but there are viable options out there, options that won't leave us worse off

Seafish Gear Database

This summer Seafish also launched the Gear Database, an online portal providing information on common gears and selectivity devices used in commercial fisheries throughout the UK and Europe. The database includes full descriptions, technical information, illustrations and links to scientific trials and reports. It features over 100 gear and selectivity profiles, providing information on how to reduce bycatch for a range of species. Content will continually expand as we upload our own library of information to the website, including links to up-to-date scientific reports.

The aim is to provide industry with easy and open access to the most up-to-date information on discard reduction methods. The database should act as a first port of call for fishermen interested in exploring options to reduce discards and will help to direct their research to find a solution that's suitable for their business and their fishery.

To access the Gear Database go to www.seafish.org/geardb

financially, we just have to find the ones that work best for us. The authorities have told me that fishermen need to participate in the process of finding solutions; it's up to us to develop the ideas, apply to have them tested at sea, verified by observers and if they're found to be effective they'll be approved."

"We must take this opportunity to avoid having something forced on us that isn't suitable and leaves us financially crippled."

Jimmy is no stranger to the process of trialling gear, "I visited the tank last year to look at Swedish Grids. Afterwards I trialled a flexible plastic grid at sea and it proved to be highly selective." Grids are already an approved discard reduction device used by some nephrops trawlers; results from some trials indicate that cod retention can be reduced by up to 95% (by weight) with no effect on nephrops retention. Although effective at reducing unwanted bycatch, Jimmy explained why he feels grids are not suited to his business, "The grid was too selective, as well as cutting out discards, I also lost all my high grade fish, which forms an important part of my income. I want to develop a piece of gear

that eliminates undersized fish, maximises nephrops and retains a small amount of high grade fish. It sounds almost impossible but I know it's not because I've seen examples of it in Norwegian fisheries."

Jimmy is working closely with Jackson Trawls, a net manufacturer based in Peterhead, to develop a selective device which will help him to achieve these aims. "The net we're currently using is quite different from a standard nephrops net, it's very low to the seabed (headline height is just 2 feet), meaning that higher swimming fish have a good chance of evading the net. We've made several adjustments ourselves to improve selectivity but we need to do more. The first step is to look at a model of it in the tank and see it performing under different conditions so that we can improve it further. Once we've made some changes we'll take it to sea with an observer and hopefully get it approved. It's a lengthy and costly process but it'll be worth it. Innovation always comes at a cost, but we're investing in our future; when the discard ban comes in these innovations could be the tools that buy our future."

Developing gear may seem a daunting task but fishermen are not in it alone. Collaborating with gear technologists, net manufacturers, government fisheries departments and one another draws on knowledge and expertise from different fields and is key in developing solutions. The Trawl Gear Technology Training Course



provides an opportunity for fishermen to collaborate with one another and a gear expert, as James West, owner of MFV Golden Sceptre explained, "It's a great opportunity to learn from one another. Everyone here has knowledge and experience of different tools and methods and we all have something to contribute. Fishermen are always improving their gear, it's a process of trial and error and tweaking a little at a time, but actually seeing it in the tank and getting Mike's input is really valuable, his knowledge of fishing gear is vast. It's also great to exchange our ideas in an informal workshop style environment and bounce ideas off one another, fishermen are probably one of only a few professions that doesn't get much chance to learn in this kind of environment." James is currently in the process of developing new gear and explained the importance of working with other experts, "You have to work very closely with the manufacturers and trust in their skill to produce something that's going to work well for you. It isn't easy to source information, so you have to rely on your experience at sea and the manufacturer's knowledge and expertise."

Strategic Intentions Survey

This year Seafish Economics ran a pilot study to investigate vessel owners' long term intentions for their business. The aim of this project is to examine the extent to which the landing obligation is impacting vessel owners' long term decisions for their business. The pilot study involved semi structured interviews with owners of demersal and nephrops vessels describing their outlook for the future of their business, their long term intentions and the barriers which may prevent them carrying out these intentions. Survey responses will be analysed alongside information on their business history, ownership structure and investment opportunities.

Results from the pilot study will be published in spring 2016 and will guide future research on the topic. In 2016, Seafish Economics will launch a long term research project on this topic in which participants will be contacted annually to discuss how their intentions change as the landing obligation rolls out across their sector. It is hoped that the results of this analysis will inform policy makers of how demersal and nephrops vessel owners' intend to respond to the landing obligation and highlight potential changes amongst the fleet. Seafish Economics are seeking volunteers from the demersal and nephrops sector around the country to take part in this 3 year study.

For more information or to take part please email: kirsten.milliken@seafish.co.uk.

Under the landing obligation, one potential solution to reduce bycatch may be to use selective fishing gear. The decision to make changes lies with the vessel owner and will depend on the existing business model and ability to invest. This diagram is designed to help individuals considering making changes to their gear by mapping out the decision making process, identifying key questions and highlighting the agencies that can provide advice, support and information.

QUAY DECISIONS: Considering New Gear?

Q Do you have enough quota to land all your catch?

✓ No immediate need to change gear

Yes

No

1. Define the Problem

Q What is the problem?
e.g. species, size of catch

Q How big is the problem?
e.g. volume of unwanted fish

Tip Defining the problem allows you to target your research and helps identify solutions.

1.1 Review Finance Options

Self Fund **Loan** **Grant**

i Seek advice & info from: POs, Seafish, bank, financial advisor & fisheries administration.

2. Research Potential Solutions

Q What are the alternatives?

Q How do they perform in your fishery?

Q What are the costs?

Tip Detailed research and review of options (e.g. previous trials and devices used in other fisheries) will help you estimate potential costs and benefits.

i Seek support, advice & info from: POs, CEFAS, DARD, Marine Scotland, gear technologists, gear manufacturers, Seafish gear database, other fishermen.

3. Select an Option

Tip There will likely be costs associated with changes, however there may also be benefits e.g. changing fishing location could alter fuel consumption.

i Financial support may be available for some gears under government funding packages and industry initiatives e.g. EMFF funding through DEFRA or GITAG.

Change Target Species **Change Fishing Location**

Alter Existing Gear **Invest in New Gear**

5. Evaluate Changes

Q How have changes affected cost structure?

Q How have changes affected level of unwanted bycatch?

Tip There may be hidden costs (or benefits) which are harder to observe e.g. altered engine load may affect the cost of repairs and maintenance.

4a. Test Gear

Tip Measure & compare: volume of catch, species composition, size of fish, gear parameters and fuel consumption. Does this compare with results from other trials? Often trials require multiple tows to ensure gear is set up correctly and performing efficiently.

i Seek support, advice & info from: CEFAS, Marine Scotland, DARD, gear technologists, gear manufacturers, other fishermen, scientific papers

4b. Trial Experimental Gear

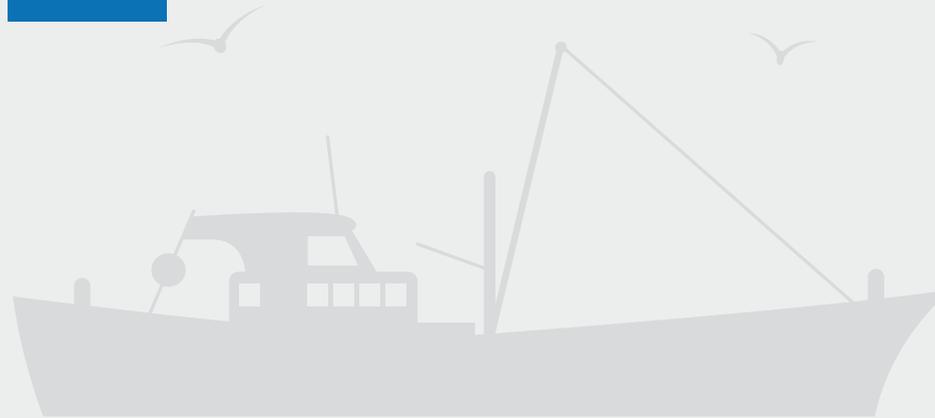
Tip Discuss ideas with local fisheries officer, gear advisory group e.g. SIDI or GITAG and government fisheries departments. Scientific observers join trials to collect catch data and compensation is paid for scientific charter.

i Seek support, advice & info from: Local fisheries officers, POs, Seafish and fisheries administrations.

Yes

No

Q Does gear comply with existing fisheries regulations in your area?



Gear Innovation and Technology Advisory Group

In August 2015, the Scottish Fishermen's Federation (SFF) secured advanced funding from the European Maritime and Fisheries Fund (EMFF) and Marine Scotland to establish the Gear Innovation and Technology Advisory Group (GITAG). This industry group aims to promote stronger working relationships between fishermen, public bodies, gear technologists and scientists to develop and trial gear innovations and help the catching sector adapt to the landing obligation.

Fishermen are encouraged to contact the GITAG manager to discuss their ideas about improving gear selectivity. GITAG will facilitate meetings between fishermen and net manufacturers to explore these ideas further. The aim is for the group to design, manufacture and trial innovations that could reduce unwanted bycatch with funding available to cover costs. On board observers will accompany sea trials to collect catch composition data, if proved to successfully reduce bycatch, gears may be approved by the Government for use in certain fisheries.

SFF Chief Executive Bertie Armstrong said "This project is designed to gather the best ideas and turn them into optimised nets – teamwork will be everything." GITAG will bring together individuals from different parts of the industry and draw on their varied knowledge and expertise to enable them to work together in tackling discards. Richard Lochhead MSP, Cabinet Secretary for Rural Affairs, Food and the Environment said "I commend the industry for their work on such an important issue and for working with the Scottish Government and scientists to develop improvements, including trials, in gear selectivity ahead of the implementation of the landing obligation in January 2016."

For more information about GITAG contact the programme manager Jennifer Mouat at: theaegirconsultancy@btinternet.com

To find out more about GITAG go to the Scottish Government GITAG [webpage](#)

Working Together To Find A Solution



As the landing obligation draws closer, it is becoming increasingly important that fishing businesses adapt their methods to comply with the new regulation.

Vessel owners across the country are exploring methods to reduce unwanted bycatch while minimising any negative financial impact. Although in some cases it can be a lengthy and costly process, the results from trials in both the UK and further afield show that it is possible to develop solutions which maximise target catches and reduce bycatch.

Collaborating with gear technologists, net manufacturers and other fishermen draws on resources and experiences from different parts of the industry and is vital in developing solutions. As the landing obligation is implemented and the demersal sector moves towards being discard free, it is vital that the catching sector and fisheries administrations work together to come up with solutions that will help to maintain an environmentally sustainable and economically viable fishing fleet.

If you are interested in learning more about trawl gear technology or would like to take part in the Training Course write to Seafish Gear Technologist Mike Montgomerie at mike.montgomerie@seafish.co.uk or visit our [website](#)

Illuminating the Possibilities: Innovative Gear Developments From SafetyNet



Over the last few years the selectivity conundrum has undoubtedly been one of the hottest topics in the fishing industry. With the initial phase of the landing obligation beginning in 2016 for demersal fisheries the need for inventive solutions and out of the box thinking is more pressing than ever. This push for new ways of catching the fish you want while avoiding those you don't want has attracted the interest of many people who are eager to help find solutions to the difficult problems facing fishermen.

One such person is Dan Watson, a mechanical engineer and founder of SafetyNet Technology Ltd. Dan's previous work includes designing applications for satellite technology for the UK's space programme, though recently his projects have brought him back to earth and beneath the waves.

"My interest in fisheries started at university; I read an article about discarding in

UK fisheries and thought that the problem would be an interesting premise for a technical project", says Dan. "The project captured my interest and ultimately using light as a tool became the focus of technology development at SafetyNet."

The SafetyNet team design and build devices that can be used to test how fish react to light as a means of increasing selectivity. Their first creation was a series of rigid, illuminated rings that could

be fitted to the top-panel of a trawl in an effort to reduce the unwanted catches of juvenile fish or non-target species by allowing small fish to escape the net.

"The rings were made of durable materials and could be fitted into the mesh of the trawl", explains Dan. "The aim was to use the fish's natural behaviour to attract them to openings in the net through which undersize fish could



escape. In the dark depths of the ocean the light rings were intended to serve as a high-contrast exit sign for small fish during trawling, with the goal of avoiding landing juveniles - if they were a quota species - and damage to the catch by crushing or pressure changes in the cod-end. This was the starting point of our work, although the rings are no longer a central focus. However, our work has now widened to the development of an array of devices looking at how light can be used to alter the behaviour of fish in a trawl."

As fishermen well know, avoiding juvenile fish safeguards the future stock and avoids having to use their quota to land fish that cannot be taken to market for human consumption.

Areas of particular interest to the team are how devices can be easily retro-fitted to existing trawls, made as user friendly

as possible and self-powering to simplify maintenance. These "fit-and-forget" systems might eventually eliminate the need for battery changes. SafetyNet has already received a positive reception, winning the prestigious James Dyson Award for design and engineering in 2012.

"Initially, I was naïve thinking I would be able to find some sort of quick and easy solution to the issue", admits Dan. "My hope now is that we can begin to

"The landing obligation has people looking for alternative solutions to selectivity issues so hopefully we can bring some new ideas and expertise to the industry. We are hoping light technologies will prove to be a very useful tool in reducing discards in UK fisheries which would greatly benefit the fleet as a whole."



use light as a tool to modify the behaviour of fish and as such the resulting catch. The concept of using light to aid fishing has been explored before but there has been relatively little done to turn experimental outcomes into a useful tool for fishermen, we are really starting from scratch here."

"As engineers our aim is to produce something that is useful and easy for both fishermen and scientists that will allow them to quickly test their own theories and promote innovation in the industry", says Dan. "The system will undergo rigorous sea trials off the coast of Scotland in autumn 2015 to ensure that the devices are able to withstand the unforgiving environments they will be exposed to during fishing. The pressure, temperature and physical damage our gear will experience during fishing is a real challenge, but that's what makes the work so interesting."

Dan and his team haven't had an easy journey. We asked him about some of the major challenges he has faced and what he thinks the future holds for SafetyNet. "Well, as it stands we are not serving customers, so one of our biggest challenges has been just keeping the project funded and continuing to make progress. We have a good handle of the technology and we have a great group of people in the industry supporting us, we just need to keep going! In particular, Barry O'Neill from Marine Scotland, Mike Breen from IMR Bergen, and Tom Catchpole and Samantha Elliot from CEFAS have been very helpful."



Working Towards a Brighter Future

Fishermen well recognise the difficulties in moving towards a discard-free fishery in the UK and the challenge is never underestimated. Whilst there is unlikely to be a single solution for the discards dilemma, new and innovative projects like the SafetyNet system represent another string to the bow. Working together and thinking outside the box has always been one of the fishing industry's greatest strengths and as the industry moves forward we hope to see even more ground breaking work and scientific research focused on improving the UK's fisheries.

To stay up to date with Dan's progress and [SafetyNet Technologies](#) or follow them on [Twitter](#).

Responsible Fishing: It's Catching

Food supply chains have changed considerably in recent decades. As international trade of many staples including seafood has become commonplace, supply chains have become increasingly complex. Buyers in both retail and food service are becoming increasingly aware of issues regarding safety, traceability and provenance and are demanding assurances that produce conforms to certain standards.

Food certification schemes can provide assurance that food is produced to industry agreed standards. For example, in the UK the well-known Red Tractor certificate is awarded to products which meet standards of traceability, food safety, animal welfare and environmental protection. Such certification schemes provide buyers with the assurance they need that the standards outlined are being adhered to. Although such schemes are voluntary, they often facilitate access to market as membership is in some cases a condition of supply.

In 2006, Seafish developed the Responsible Fishing Scheme (RFS), a certification scheme which focussed on the maintenance of the vessel and catching practices. RFS has recently undergone a major review, implementing a new governance structure and expanding to include social responsibility. In anticipation of the modified scheme's public relaunch in early 2016, we spoke to [Mick Bacon](#), RFS Manager at Seafish, about the role of RFS, the benefits for members and how the updated scheme differs from the original.



Originally established in 2006, the RFS is open to all types of fishing vessel, ranging from single handed day boats to large pelagic trawlers. Existing seafood certification schemes at the time the RFS was developed focussed on fisheries sustainability, onshore activities and aquaculture management. There was no existing scheme to recognise individuals in the catching sector who followed best practice guidelines relating to the activities and operations of their vessel; RFS remains the only global certification scheme addressing these issues today. "Unlike the shore based elements of the seafood supply chain, the catching sector had no discernible mechanisms to allow it to independently demonstrate good standards of operations and practices" explained Mick Bacon, RFS Manager at Seafish "The RFS safeguards the reputation of the catching sector by proving that good practice is being adhered to through robust third-party auditing. This helps prevent negative perceptions of the industry that could disadvantage seafood sales when competing against other land or farm based foods."

The revised RFS remains a voluntary, vessel-based programme and now includes an effort to certify high standards of crew welfare on fishing vessels. The independently audited scheme demonstrates that a vessel and its skipper are adhering to best practice in five core areas:

- Safety, health and welfare
- Training and professional development
- The vessel and its mission
- Care of catch
- Care for the environment

“The RFS therefore provides tangible evidence that seafood landed by an individual vessel has been harvested and handled to industry agreed high standards from catch to quayside.”



Mick explained what was new to the scheme: “Following a major stakeholder review, it was clear that there was a need for enhanced governance structure and additional elements to cover crew welfare and health and safety which were not being fully addressed by the original scheme, or any other seafood certification scheme. Demonstrating social responsibility and human

“A number of UK supermarkets and foodservice sector suppliers have already committed to feature the RFS scheme within their sourcing policies.”

welfare is increasingly being sought by the supply chain. The RFS addresses this issue and complements other fishery-based sustainability certifications, contributing to the sector’s long term viability.

Another major addition is the Chain of Custody standard, which will ensure the catch can be traced right through the supply chain and provide further assurances to seafood buyers.”



Key to the updated scheme is the new third party auditing process. Although Seafish owns the standard, under the new scheme, vessel inspections are carried out by an independent certification body. “The application and assessment process follows a clear structure in line with ISO17065 accreditation requirements and is completely impartial, credible and transparent” says Mick. ISO are the International Organisation for Standards, an independent, worldwide, non-governmental organisation who develop standards and facilitate world trade.

Joining the RFS is relatively straightforward but requires some time and effort on the applicant’s part. “The process starts with the vessel owner submitting an application form to Seafish to capture basic information on vessel operations, ownership and contact details” explained Mick. “Applicants will then receive two packs from Seafish; an

Application Pack which needs to be completed and returned directly to the certification body, Acoura, and an On Board Pack which includes documents for the skipper to complete and use during the on board audit. As part of the certification process the skipper will need to work through the relevant Compliance Support Guides (CSGs), which can be found on the RFS website. These easy to follow guides explain all the necessary standards, policies and procedures that need to be in place before a vessel audit can be arranged. Following the vessel audit the findings will be reported back to the skipper, with 30 days given to resolve any non-conformances. The final decision is made by Acoura’s certification committee, who are independent from the audit team and award certification to the successful applicants. The unit of certification is both the vessel and the skipper as a partnership. Seafish are currently working on a suite of guidance materials and a

one-day Skippers Support course, which will be made available through our network of Approved Training Providers, to ensure there is sufficient support available to skippers throughout the entire process.”

Acoura have a long standing track record of carrying out inspections for a range of schemes and standards in the food and drink sector including seafood. “The third party auditing phase is where the major cost is incurred,” explained Mick “costs vary depending on the size of the vessel, with first year audits at £350 +VAT for vessels over 10m and £150 +VAT under vessels 10m vessels (and/or operated single-handedly). Third party auditing is vital because it’s completely unbiased and is an essential part of ISO accreditation.” As part of the re-launch a number of vessel owners have recently trialled the auditing process and their feedback is being used to streamline and improve the process for future applicants.

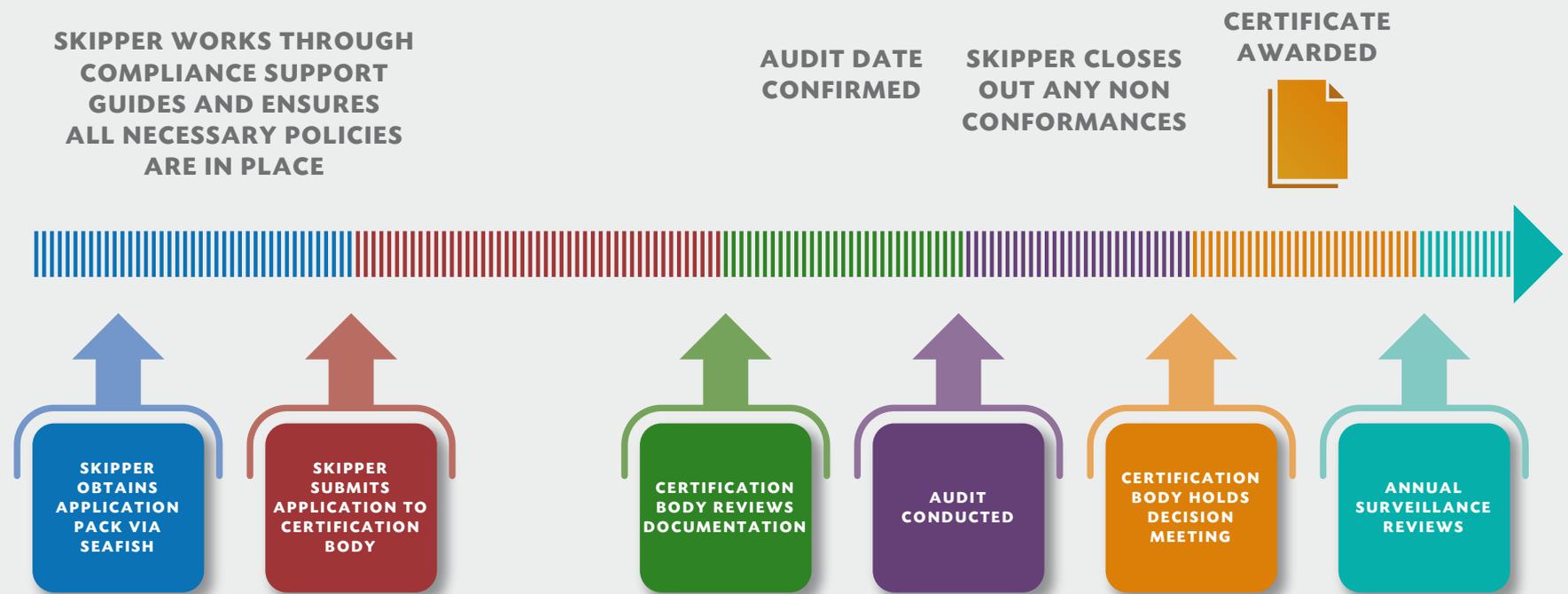


Best Practice Makes Perfect

Despite the time and financial investments, there are a number of benefits for members, as Mick explained “An ever growing element of the seafood supply chain are looking to the RFS to offer them reassurances with respect to sourcing raw materials. RFS membership will therefore open up access to markets where RFS certification is increasingly becoming a condition of supply. Additionally, members may attract and retain crew motivated by the high standards of crew welfare and the opportunities for their personal continued development whilst working on board an RFS certified vessel. Retailers and major food service suppliers alike will be supporting the scheme through purchase of raw materials from certified vessels only, as some require assurance that on board operations, crew welfare and catch quality from these vessels meets industry defined indicators of best practice.”

In the long term the goal of certification schemes is to raise industry standards. The RFS aims to promote best practice amongst the catching sector, reducing accidents, enhancing the industries reputation and increasing the resilience of the industry in the long term.

RFS APPLICATION PROCESS

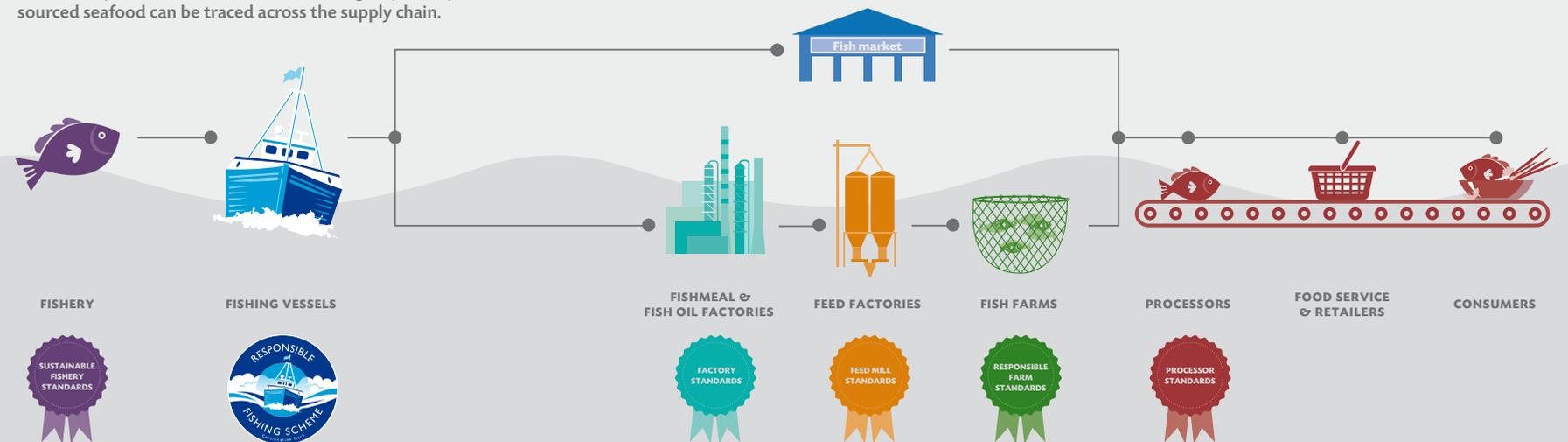


DEMONSTRATING STANDARDS FROM CATCH TO CUSTOMER

RFS is the only vessel based standard, ensuring responsibly sourced seafood can be traced across the supply chain.



RFS CERTIFICATION ENDORSES BEST PRACTICE ON FISHING VESSELS, MAKING IT EASY FOR THOSE WITHIN THE SEAFOOD SUPPLY CHAIN TO GET ON BOARD WITH RESPONSIBLY-SOURCED SEAFOOD.



RFS In Review: Feedback From The Pilots

As part of the major RFS review, a number of fishermen have recently piloted the new scheme to test the application and audit process. The feedback that these intrepid fishermen provide will help Seafish to improve the process for future applicants. Some of the pilot audits were completed in August and the first three fishermen to be awarded the new RFS certification spoke to us about why they joined and what RFS means to them.



Bob Carless Manta Ray II

Bob Carless, 50 from Axmouth in East Devon has had an interest in fishing since he was young and began fishing commercially five years ago.

On his vessel, the Manta Ray II, which he mans single handedly, Bob uses the rod and line method of catching and specialises in bass, pollock and cod. Bob has always strived to ensure that he fishes responsibly and saw RFS certification as a method of proving this to buyers "I have always had a strong 'care of the catch' record," explained Bob. "I saw the RFS certification as the perfect way to demonstrate



that officially. When I applied for the original version of the RFS I was attracted by the opportunity to prove my commitment to responsible fishing to my customers and all of my invoices carry the RFS logo."

"With some retailers now expecting the certification as standard from its suppliers, signing up is now just a matter of good business sense."

When the updated RFS certification became available, Bob was quick to sign up. As one of the first vessel owners to go through the auditing process, he received support from Seafish to gain certification "I was guided through the whole process and all of the

measures I needed to have in place to gain the qualification were fully explained. That was a great help and massively put me at ease," explained Bob. "Because the new auditing process is so comprehensive, it really makes achieving the

new certification something to be proud of. It also instantly adds to the profile of any vessel that completes it. Especially as the new qualification has an additional focus on the safety and wellbeing of crew members. Being one of the first vessels to qualify is a great feeling." The

feedback Bob has provided on his experience will be used to improve the process and develop on-line support materials for future applications.

Following the pilot audit the scheme will be open to all fishermen, including those who weren't part of the original scheme. Bob has been a member for a number of years and wants others to sign up and enjoy the benefits "The fishing community I live and work in is very close, so I have been encouraging others to look into the new certification. Some of the older generation will need more encouragement, but once they see the benefits the RFS can provide to their businesses I'm certain they'll get on board to help our industry become the most responsible in the world."



John Hughes The Branscombe Pearl

John Hughes, aged 70 has been fishing commercially for 50 years. John catches crab and lobster from Branscombe Beach, near Seaton in Devon on his vessel the Branscombe Pearl.

John, was not a member of the original RFS when he opted to join the pilot audit, he explained what attracted him to the scheme "Sustainability is a very important issue in our industry and I really wanted to show my customers that the product I bring in is caught responsibly. I'm very proud of the shellfish I catch and I want to do all I can to make sure my customers continue to enjoy it in the future."

As a newcomer to the scheme, John had to make a number of changes to his business, he explained why he felt this was important "Making sure I was doing everything required to meet the standards of the certification did take effort. The auditing process is thorough.

But I would still recommend anybody who is thinking about signing up to make that step. It's definitely worth it in terms of assessing your own processes and practices to ensure they are meeting an industry benchmark."

John "Now more than ever, suppliers and consumers really care about where their seafood has come from and how it is caught – covering everything from the catching methods and the crew, to the practices on the boat including safety and

"It's a great way to promote your business and make sure the industry, and the produce we are passionate about is still around for generations to come."

As responsible practice and welfare issues move up the agenda of both retailers and food service buyers, the RFS provides an opportunity for fishermen like John to demonstrate their commitment "Every stage of the supply chain is getting behind the RFS." Explained

environmental controls and services. The RFS allows vessels like mine to demonstrate we are adhering to that demand and as an independent, single-handed fisherman it makes complete sense to get on board with the scheme. It will really help my product stand out."



Sam Lambourn The Britannia V

Sam Lambourn is a gillnet fisherman, targeting hake and lands mostly to Newlyn. Sam's first vessel the *Lyonesse* has been certified under the previous RFS since 2012.

Two years ago Sam bought his second vessel, *Britannia V*, and when the pilot audit scheme opened up, he decided to get *Britannia V* certified as well.

Sam lands much of his hake to Cornish processor Falfish. "Falfish are a regular customer," explained Sam "RFS certification is one of their conditions for sourcing seafood, so I decided to put the *Britannia V* and her skipper through RFS certification as soon as possible." However, this was not the only aspect that attracted Sam to the scheme. "One of

the biggest benefits for me is that it makes the business of running my boat much easier because I have a set of excellent standards to work towards. The systematic approach of keeping records updated and carrying out various checks keeps me right. If I wasn't a member I would still do most of the checks required but things like emergency drills probably wouldn't be done quite as regularly as the RFS requires. RFS certification makes everything a little more professional and raises standards across the board."

A major aspect of the RFS relaunch is the independent, third party audit procedure. Sam found the new audit process much more comprehensive than the previous scheme, but feels it is important "Having been in the previous scheme, I was surprised at how much more thorough and rigorous the standard and audit is this time around" explained Sam "everything is looked at and each bit of the standard has to be met – the phrase 'dot the i's and cross the t's' comes to mind. The biggest difference for me this time around though is the added focus on the welfare and ethical treatment of crew which is definitely becoming a bigger issue now due to the stories about slavery in the Thai fishing industry." Although describing the initial paperwork as "laborious" Sam understands that now this phase is complete, it will be easier going forward. Sam feels the RFS is vital for maintaining high standards and feels the benefits of the scheme apply to vessels of all types and sizes.

"With some retailers now expecting the certification as standard from its suppliers, signing up is now just a matter of good business sense."



The Future of Responsible Fishing

There are clear benefits for members of the scheme. As Sam pointed out, RFS certification is a condition of supply for some buyers and joining the scheme gives him full access to markets. The RFS is also an opportunity for fishermen to market their products by proving their commitment to following best practice guidelines, as John explained it helps his product to "stand out" and Bob describes joining the scheme as "a matter of good business sense". Although the updated scheme is more rigorous and requires more commitment from applicants, the auditing process ensures a more transparent and bias free approach to vessel certification.

As RFS moves into international fleets this process is vital and ensures that certification meets international standards, adhering to FAO codes of conduct. Now that the initial pilot auditing process is nearing completion, the feedback supplied by Bob, John and Sam as well as our other pilot skippers will help Seafish to improve the process for future applicants.

The Retailer's Perspective:

Why Morrisons Support RFS

RFS is not only of relevance to fishermen but throughout the supply chain. We spoke to Huw Thomas, Fisheries and Aquaculture Manager at Morrisons, strong supporters of RFS since 2009, about why the scheme is important to the supermarket, its customers and its shareholders.



Huw Thomas Fisheries and Aquaculture Manager, Morrisons

“We know that our customers want fresh fish that’s responsibly sourced. Our aim is to provide them with fish that has been caught or farmed using methods with the least impact on the marine environment” explained Huw.

Morrisons has a long and proud reputation for providing a wide range of fresh seafood products and understand that responsible catching and handling methods are a high priority for their customers. In the lead up to the opening of their Grimsby fish processing plant in 2012, Morrisons reviewed and updated their seafood policy. “Our aim was to develop a method of proactively engaging in the long-term sustainability of fisheries. To ensure that our wild caught

fish is responsibly sourced it must pass through our decision tree process, which considers key factors including: the biomass stock available, the impact of the fishing method on the marine environment, the management measures in place to prevent over-fishing and that it is fully traceable. If we identify concerns in any of these areas we work hard with suppliers to address the issue, ensuring it meets our standards and it is compatible with our seafood policy.”

Morrisons support a number of seafood certification schemes that demonstrate the values enshrined in their seafood policy. This guarantees that their sourcing and procurement procedures are consistent with their values and their commitment to support responsible seafood production. While many schemes focus on environmental sustainability, few address the health, safety and welfare of the catching sector, still the most dangerous peacetime occupation in the UK.

“In our view, safety on board fishing vessels was a major concern that wasn’t being adequately addressed in the UK industry.”

“The RFS was the only certification scheme available that tackled issues of crew welfare and health and safety. An added bonus for us was that RFS also came with a ‘care of catch’ element, meaning it also helped us to achieve our ambitions of sourcing fresh, quality fish.” The care of catch element covers responsible capture and handling, including fully documented, hygienic handling and storage and responsible handling of live catch to maintain quality and therefore value. The care for the environment element also promotes recovery of lost gear, support of fisheries science exercises and support of voluntary schemes. With the addition of these elements RFS certified vessels agree to treat their vessel, crew, catch and the marine environment responsibly.

There are a number of consumer facing certification schemes, sometimes referred to as eco-labels, which provide consumers with a guarantee that a product complies with industry agreed standards. However, the increasing number of these initiatives can cause confusion amongst consumers when choosing products. Partly so as not to add to this noise, the

new RFS will remain a business to business scheme under the relaunch, meaning that the end product will not be labelled with the RFS logo, however the chain of custody element ensures that each link in the supply chain will know where the seafood has come from and where it is going to. Morrisons does not label seafood products with the various eco-labels that it supports but instead makes their seafood policy publicly available via their website. Morrisons are also members of the Global Sustainable Seafood Initiative who aim to enhance transparency and comparability of different schemes and aid decision making, as Huw explained “The Global Sustainable Seafood Initiative benchmarks various schemes against FAO (UN Food and Agriculture Organisation) codes of conduct. We hope that soon the RFS vessel certification will become integral to each of them.”

“Third party certification schemes provide an independent audit against multi-stakeholder developed standards meaning that it isn’t Morrisons saying how our supply chains perform but someone unconnected to us.”

Supporting RFS is not only important to Morrisons’ customers but to their wider stakeholders, including pension funds and shareholders “We’ve included RFS within our corporate review for the last 2 years and via a number of media outlets communicated our support to our shoppers and

shareholders. The awareness of issues surrounding health and safety at sea, working and general labour conditions on vessels has increased dramatically in the last 18 months, our stakeholders view the RFS as a key step to addressing these problems, not just in the UK but also overseas.”

Huw also believes there are distinct advantages of membership for the catching sector “RFS certification provides fishermen the opportunity to demonstrate their compliance with the law and best practice. They are supported to achieve the best price for fresh, high quality seafood through the care of the catch component of the standard. As standards increase across the board, RFS certification is rapidly becoming a prerequisite for many seafood buyers, not just Morrisons. RFS certification provides assurance that seafood is being supplied from vessels operating legally

and safely. A major industry challenge is the inherent dangers associated with fishing, which potentially discourages newcomers from joining. Our hope is that through a safer industry, more people will join which will help sustain a vibrant, healthy and resilient fishing fleet.”



RFS Certified: World Leaders in Responsible Fishing

A major element of the RFS relaunch is its potential to become an international standard. Seafish is currently applying for this and it is our ambition that RFS will be available to international fleets in the near future. Seafish is also developing a Vessel Improver Programme (VIP) ensuring that the RFS is accessible to all, including fleets in developing regions which may require a longer timeframe and targeted support to implement the necessary changes needed to comply with the standard.

A VIP – much like a Fishery Improvement Plan (FIP) – will be a framework around which funding can be sought and milestones set to benchmark, monitor and measure improvements in fishing vessel operation and performance, leading ultimately to full compliance with the RFS standard. As a member of the RFS Oversight Board, Morrisons have been closely involved with the scheme's redevelopment and Huw has high hopes for the

future: "Our policy commits us to looking at how we can expand the RFS scheme to our international supply chains. There has been definite interest in this and we hope that it can be delivered."

As the RFS prepares to officially relaunch in early 2016, a number of UK retailers and major food service suppliers are already backing the scheme. As Huw himself says, RFS certification is fast becoming

a 'prerequisite' for many buyers as overall industry standards rise. Responsible behaviour towards the vessel and crew as well as the catch and the wider environment is paramount for ensuring that we have a healthy, vibrant, resilient fishing fleet in the future. As the RFS moves into international markets, UK members will be the world leaders in responsible fishing, making them more competitive in international markets.

Fishing For The Next Generation

In the aftermath of the recession, many industries cut costs by reducing spending on staff. In recent years the job market has bounced back and many employers are now more confident about hiring. However, a number of industries are facing aftershocks with the major cutbacks from previous years contributing to a shortage of skilled workers.

Issues with crew are a common talking point during our annual fleet survey. This year, skippers from a number of sectors described difficulty in finding crew and in particular expressed concerns that there are not enough youngsters starting careers in fishing. The long-term security of the fishing industry is tied in with the need to attract new entrants and to develop a skilled labour force. Here we look at some of the barriers that could be preventing youngsters from joining the industry and examples of programmes underway to help newcomers get started.





with the Maritime and Coastguard Agency, delivers **seagoing training** for all UK commercial fishermen. In 2014 a total of 7,700 of these training places were delivered to fishermen at all stages of their career.

Various local schemes have also been launched over the years to promote the industry to youngsters and to encourage newcomers. This year, for example, The Scottish Fishermen's Federation launched a new pilot initiative in Aberdeenshire to help kick-start youngsters' fishing careers. School leavers have been given the opportunity to undertake the mandatory basic training, followed by a two month work placement on board a commercial fishing vessel. Participants wishing to

Skippers around the country have described difficulty in recruiting and retaining crew. Some told our researchers that they felt youngsters were not interested in fishing careers, while others described marine industries other than fishing as appealing more to youngsters. Work from the Institute for Regional and Rural Research Australia has shown that in a number of developed nations, including the UK, France and Japan, the number of new entrants in the fishing industry has declined in recent years and as a result the proportion of workers over 60 has increased. An aging workforce is not unique to fishing, as this is being observed right across the UK labour market. However, over reliance on an aging workforce, especially in an industry as physically demanding as fishing, is sure to create a number of challenges for the fleet. Without youngsters to replace the older generation as they approach

retirement age, the labour force will shrink. In countries which are experiencing these trends, the gap left by youngsters is increasingly being filled by foreign workers.

The problem of recruitment appears to be complex and is influenced by both internal industry conditions and external influences.

Factors ranging from restrictive licencing, demands of the job and the pull of other industries are often described by fishermen as major influences on youngsters' decisions on whether to join the industry; moreover economic factors such as high start-up costs and salary expectations played a big role in weighing up possible choices.

In recent years huge efforts have been made to provide fishermen with adequate training to ensure safe conduct at sea. Seafish, in conjunction

pursue fishing careers further then have the opportunity to enrol on a two year Modern Apprenticeship, leading to a qualified deckhand certification. Although limited, places on the pilot scheme are fully funded and give youngsters an opportunity to gain crucial work experience on board a commercial fishing vessel. Training schemes like this open up the industry to individuals from non-fishing backgrounds and who therefore might not otherwise have the opportunity to acquire these skills.

In 2014 just over 3,000 of the Seafish approved training places delivered were fully funded. Funding for training is crucial and provides opportunities for individuals with a low income to acquire the skills required to start their fishing career. This training does not, however, address some of the more complex economic factors that can deter or even prevent youngsters from joining the industry. Once trained, a newcomer can then find a position on board a fishing vessel; however in some regions this may be more challenging than others.

Salaries are a major cost for vessel owners with crew. Seafish Economics estimates that the average spending on crew share in 2014 as a percentage of turnover ranged from 19% (Beam Trawlers) to 38% (over 10m Static gear), accounting for 24% of the total industry turnover. When margins are tight, a common cost-saving method in any industry is to reduce spending on staff.

Some fishermen told us that they now operate a greatly reduced crew to save costs or choose to employ contract or agency workers who are paid a fixed salary instead of a crew share.

Salary expectations are a major influence on youngsters' career choices. Offering competitive wages is therefore one method for industries to attract newcomers. The National Careers Service estimates that a new recruit would expect to start on approximately £10,000 per year, rising to £25,000 as a fully experienced deckhand. This estimate is comparable with other primary industries, however, the crew share system means that wages may not be consistent because they will vary depending on the volume and species of fish caught, the price achieved and fishing costs, e.g. fuel, quota leasing or ice. Although wages will likely balance out over the year, some youngsters may prefer a steadier, guaranteed income. For example, weather is a major limiting factor and could prevent a vessel from going to sea for prolonged periods, meaning there is no work for crew. Fishing is also often described as a very physically demanding job, requiring unsociable working patterns and some

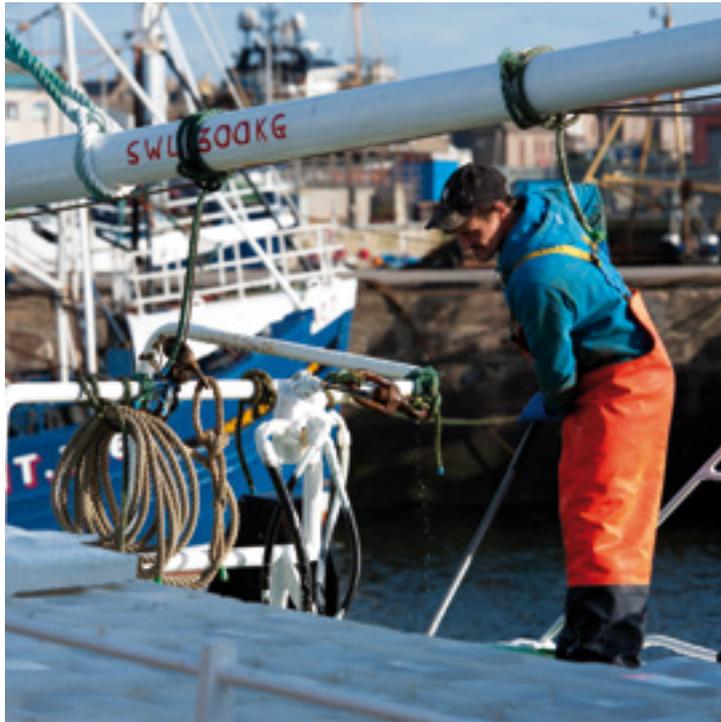
youngsters may prefer a less demanding job on-shore with a comparable salary to the one they could earn fishing. In some parts of the country the fishing industry also competes with the offshore energy sector for workers. The skippers who took part in our survey described a number of challenges in competing with these industries for potential new recruits as often these firms will have the ability to offer greater financial incentives.

Offering salaries that youngsters find attractive is one option to improve recruitment. In many fishing sectors wages are calculated on a share basis and salaries are therefore directly related to vessel income and fishing costs. Rising fishing costs such as fuel and quota leasing can present vessel owners with some tough choices when trying to maintain profitability and reducing spending on crew is one option for them. The key to encouraging youngsters into the industry is therefore increasing profitability so



that vessel owners can offer salaries that are comparable with other industries and that are successful in attracting new recruits.

An experienced deckhand may one day choose to become a vessel owner themselves. They could be the successor of an existing fishing business or they may choose to establish their own fishing business. Either way, a fishing business is no small investment - either in terms of finance or the sheer time, energy and imagination required to start something completely new- and an individual aiming to become a business owner will incur costs in the process.



Finding the capital needed to start a new business is the major economic barrier facing newcomers in any industry. In fishing, as in other industries, funding is required for fixed assets (such as the fishing boat), non-tangible assets (such as fishing rights) and both overheads (e.g. legal fees) and variables costs (e.g. fuel) in the first few months of operation. Costs vary between sectors, depending largely on the vessel, licence and other fishing costs. The cost of purchasing a vessel can range from £5,000 for a second hand, unlicensed, under 10m vessel to over £2m for a new, over 24m trawler ready to start fishing. Other start-up costs can include fishing rights such as quota units, shellfish entitlements, gear and legal fees. The static gear, inshore sector is usually a lower cost opportunity for individuals wishing to start

their own business. A major advantage of this route is that they can target non-quota species and avoid having to invest in quota units. As they develop skills, experience and financial capital, young owner/skippers can reinvest their profits into a larger vessel and grow their business gradually. However, a number of skippers pointed out that restrictive licencing and competition for limited space on the seabed could potentially prevent new entrants to the sector from establishing their businesses.

As in any industry, financing the purchase of a fishing business can be difficult, particularly for youngsters with limited financial capital or security against loans. However, assistance is available. For example, grant funding under EFF Axis 1 First Time Vessel Owner/Shareholder was available until 2015 for fishers

under 40 years old with over 5 years' experience in the fishing industry to support their first full or part share in an active vessel.

Other locally targeted schemes run in partnerships between Local Authorities, banks, fishermen's associations and processors, such as the Outer Hebrides Fisheries Support Scheme, have successfully provided assistance with business planning and low interest loans for new entrants.

The added cost of quota can significantly increase the start-up investment needed for those intending to target quota species.



In the UK, Fixed Quota Allocation (FQA) units, while not giving legal title to the holder, are bought and sold as well as being leased out for the year by the FQA holder. The cost of both purchasing and leasing FQA units has been rising year-on-year since the introduction of restrictive licensing and is likely to rise further as the landing obligation inflates demand. While this rising cost presents difficulties for any business targeting TAC species, the high cost of investing in or leasing quota units is particularly challenging for new entrants who may have less financial capital and purchasing power than their more established competitors. While it could be argued that this encourages new entrants to be more efficient in order to compete with established businesses,

their access to quota influences their ability to land fish and generate income, and if limited from the start they may be excluded from the industry before they have a chance to become established.

Minimising quota costs for newcomers could help to reduce total start-up costs and encourage individuals to launch their own business. Quota banks, ring-fencing and top-slicing of community quota holdings are examples of quota management systems that have been used worldwide to help accommodate newcomers who may otherwise struggle to become established. Any changes to the existing quota allocation systems would have to be acceptable for all involved and guided by decisions at the local level.

The Shetland New Entrants Scheme is one UK example of a quota redistribution scheme designed to help newcomers and has aided a number of new entrants in recent years. Under the scheme, the Shetland Fish Producers Organisation (SFPO) 'lend' newcomers quota from a community quota pool (quota units bought by SFPO and Shetland Islands Council from decommissioned vessels since 1993). Newcomers then fish against the general quota pool and pay a proportion of their gross earnings to SFPO. Under this scheme, quota leasing costs are dramatically reduced for newcomers getting established in the industry. Similar examples of community quota holdings which have been used to facilitate the entry of newcomers exist in Alaska, New Zealand and Danish fisheries.



Investing In The Future

Despite the economic barriers, there are still youngsters attracted to careers in fishing. The emergence of local training programmes and the number of individuals undertaking training every year indicates that there is demand for these skills.

Whilst there is still plenty of work to do there are still youngsters who want to choose a career in fishing.

Many vessel owners tell us during surveys that they believe theirs will be the last generation of fishermen in the UK. To prevent this, it is vital that vessel owners provide opportunities for newcomers, enabling them to develop their skills at sea so that, if they choose, they can become vessel owners themselves one day. However, the issue of recruitment is so closely linked with business financial conditions that for vessel owners to be able to provide these opportunities they also have to maintain revenues.

Getting A Foot In The Door:

How 16 Year Old Ben Lowe Launched His Own Fishing Business



Image courtesy of Newquay Voice

Describe your fishing method?

I fish commercially from my 8.2m catamaran out of Newquay harbour in Cornwall. I mainly target lobsters and crab using pots and also some wet fish such as pollock, mackerel and cod using rod and line.

What was your motivation for joining the industry?

My parents own a diving and wildlife tourism business. Since I was about five, I used to go with my dad on fishing trips with tourists and I really loved it. I loved being on the boat, out in the open and wanted to find a way of making a living from it, so I chose to become a commercial fisherman. It's an ever-changing environment, meaning no two days are the same. The volume and species you catch varies with the weather and the seasons so it means you constantly have to think on your feet and adapt

Ben Lowe

Atlantic Voyager

Vessel Length: 8.2m

Gear Type: Pots & handline

Target Species: Crab, Lobster, Pollock, Mackerel, Cod

Home Port: Newquay

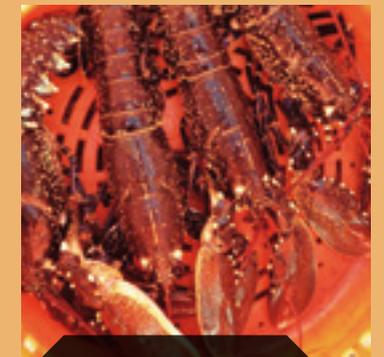
When Ben Lowe turned 16 in July this year he officially launched his own fishing business. We spoke to Ben about some of the challenges and opportunities of entering the industry and his hopes for the future of his business.

your methods. I also love the adventure of solving problems, for example when something goes wrong with the boat; you have to find out what's causing the problem and then find a way of fixing it. Really though, it's a passion.

How did you learn to fish and what process did you go through to start up your business?

My dad [Chris Lowe] taught me most of my fishing methods and I adapted them for commercial use. I do a mixture of rod and line fishing and lobster potting, which are both very sustainable methods of catching and I really like that aspect of the industry. To get to where I am today, my family and I invested in many boats, first starting off with smaller boats and doing them up, selling them and progressing on to slightly larger boats. Eventually I built up sufficient capital to buy a big

enough boat that I could use for commercial fishing. I also built up some really good skills at the same time, learning how to fix problems with the boats which will come in really useful in the future. In the meantime I also undertook the necessary health and safety training and other courses covering vessel operation and navigation. Fortunately, because I started young, I had a lot of time to build up the skills and capital necessary to start my own business as soon as I was able to do so legally at the age of sixteen.





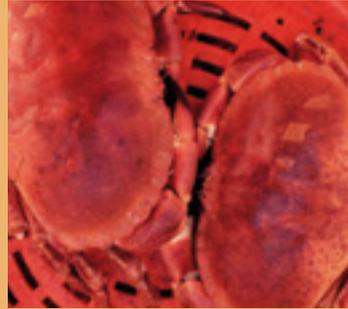
Why did you start your own business rather than join the crew of another vessel?

I love the freedom of it, because I can work at my own pace and choose my own ways. I also like finding new ways of fishing and of course, being my own boss. Besides, it is very nice and peaceful to be out at sea on your own.

What was the most difficult thing for you when you were starting up your business?

The financial side was quite difficult. When starting out, there are a lot of costs. For at least a year to begin with you are effectively losing money because of all the things you have to buy and you have to invest most of your profits into building and expanding the business. The boat itself is the first big cost and depending on its condition, you may need to upgrade or maintain it; my boat was in bad need of reconditioning, both cosmetic and engine work, which was expensive. On top of that you also have to find the money to buy fishing gear, fuel and bait. It adds up and it can make the first year very challenging financially.

I overcame the financial difficulties by spreading out my investments over time, finding the cheapest method of getting the job done and reinvesting all my earnings back into the business. I started off with smaller boats when I was very young, buying and doing up cheap boats, then selling them for a little bit more and using the profits to buy a bigger, more run down boat and so on. Eventually when I was about thirteen, a very cheap, very run down licensed fishing vessel came onto the market, which I bought and slowly upgraded to its current condition. I also spread out the cost of gear by buying it gradually. When I first came into the industry, I had 20 lobster pots, which I bought second-hand. They weren't very good, but I saved up and bought new ones over time. Now I have 80 pots, most of which are new. So overcoming the financial barriers has been a gradual process of building up capital and reinvesting my profits. Along the way I've been learning to fix engines and boats and gaining loads of fishing experience.



Describe your business model and route to market. Why did you choose this model?

When starting the business, I initially thought I would be landing to local restaurants in Newquay and then eventually when I am catching more, I would start selling on the open market. This is where I am at the moment – selling to local restaurants and to a wholesaler, who takes the catch to the Newlyn fish market and from there it goes to food service businesses across the country. I choose to sell to local restaurants because I like the idea of catching a fish and having it on someone's plate within 24 hours, so it is as fresh as it can be. Newquay is popular with tourists and there is a lot of demand for fresh fish so it works really well here.



What are your expectations and aspirations for the future of your business?

I hope to upgrade the boat, get new engines, buy more equipment such as jigging machines to make the job easier, and get around 300-400 pots to secure a bigger catch and a steady income. I want to have enough gear to be able to switch target fish seasonally and to allow for a more consistent income, which will help to finance the expansion of the business.

I'm also thinking of opening up a fish retail unit here at the harbour. The unit is currently being used as a store, but I have plans to use it as a shop where people can buy fresh, locally landed fish and shellfish. The unit would have facilities for cold storage, filleting fish and cooking shellfish. The plan is for it to open next season and it may later expand to a fishmonger's, we'll see. It'll be quite difficult, because I still have to focus on getting more gear and improving the boat to a standard where I could make more profit. I could then reinvest that profit to develop the on-shore side of the business.

It would also be good to show people how the fish they are eating is caught and teach them about the sustainable fishing methods that are used by the local fishing fleet, so I might also look into providing educational trips for the public as a service.

Do you see yourself working in the industry in twenty years' time?

Yes, I am confident I'll be in the industry then. The local inshore industry is very sustainable and the fish stocks are being maintained well at the current rates of stock recovery. The fishing knowledge and experience I'm gaining right now will be very useful in the future, especially as I learn more and get better at fishing over the coming years. Also, I love being part of the Newquay harbour fishing community. Everyone here looks after each other and I want to continue being part of this vibrant community.



Image courtesy of Newquay Voice

Taking The Wheel

Speaking to Ben it's clear he has an incredible passion for the industry, yet, to succeed in business more than just passion is required. New vessel owners also need to think in business terms and make detailed plans for their future. Despite being just sixteen, Ben has been slowly building his business for a number of years patiently picking up skills and resources as he went. He was realistic enough to know the first year would be tough but now he has established himself he's continuing to look forward and explore opportunities to expand and diversify his business.

For the fishing industry to survive it's important to invest in the next generation whether it is through funded training or schemes to remove the economic barriers to starting a new business. By opening up opportunities and helping individuals to develop we can give this industry that so many people are so passionate about the chance not only to survive but even to thrive.

Quay Stats: Shellfish

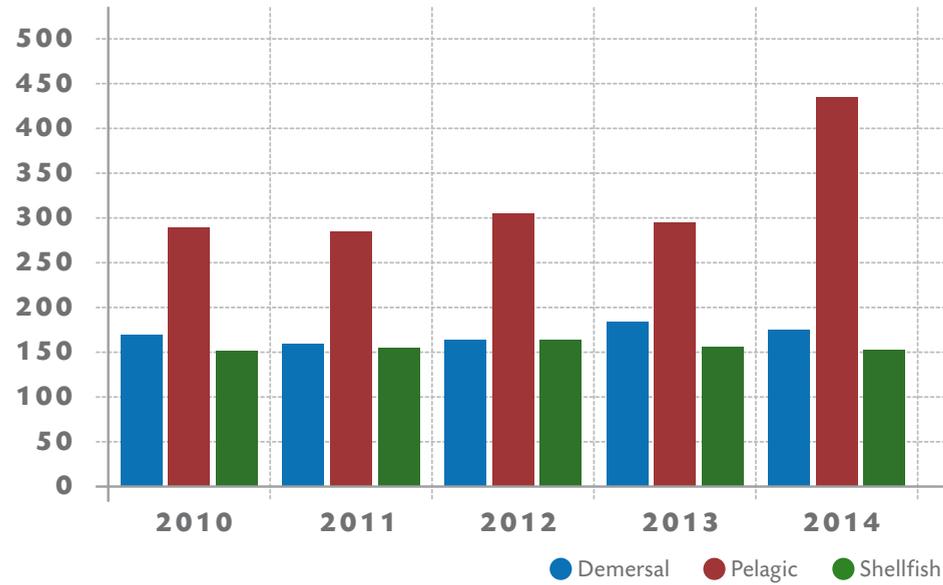
Since 1960, reported landings of shellfish into the UK have increased roughly five fold. This is partly due to improved reporting but can also be attributed to a diversion of the fishing fleet's activity into this sector which is generally less restricted than others with nephrops being the only shellfish species subject to quota.

According to the 2014 UK Sea Fisheries Annual Statistics, UK vessels landed a total of 756,000 tonnes of sea fish into the UK with a value of £861 million. Of this, around 20% or 151,100 tonnes was shellfish with a total value of £292 million, accounting for 34% of the total value of sea fish landings. The volume of shellfish landed into the UK increased from 2010 to 2012, reaching a peak of 163,500 tonnes and has fallen for two consecutive years since.

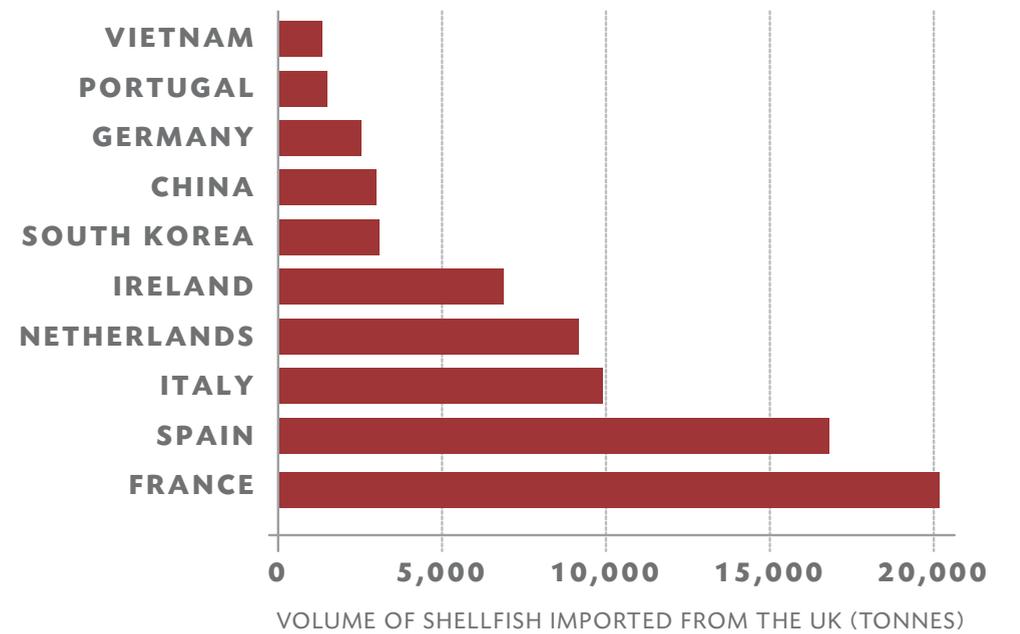
In 2014, 61,500 tonnes of shellfish was landed by vessels administered in Scotland, 41% of the UK total. Fraserburgh, Brixham and Leigh-on-Sea (in Essex) were the top three shellfish landing ports by volume, accounting for approximately 11% of total shellfish landings between them. Fraserburgh has experienced the greatest change in terms of the volume of shellfish landings into any UK port with landings decreasing from 12,500 in 2010 to 6,200 in 2014. During the same period shellfish landings increased more than fourfold at Leigh-on-Sea from 800 tonnes in 2010 to 4,900 tonnes in 2014.

The three main shellfish species landed by UK vessels in 2014 were scallops, crabs and nephrops, which combined accounted for approximately 70% of both the volume and value of UK shellfish landings. The average price (not adjusted) per tonne of shellfish has increased by almost 10% since 2010; but of course there is considerable variation in average prices between species. Lobster has by far the highest average price per tonne of the shellfish species with a value of £9,890 per tonne in 2014. Lobster prices peaked in 2007 but have since come down to below what they were in 2000 (not adjusted for inflation). In 2014, the price of UK landed nephrops was £3,240 per tonne landed, a 30% increase on 2010 prices. Mussels

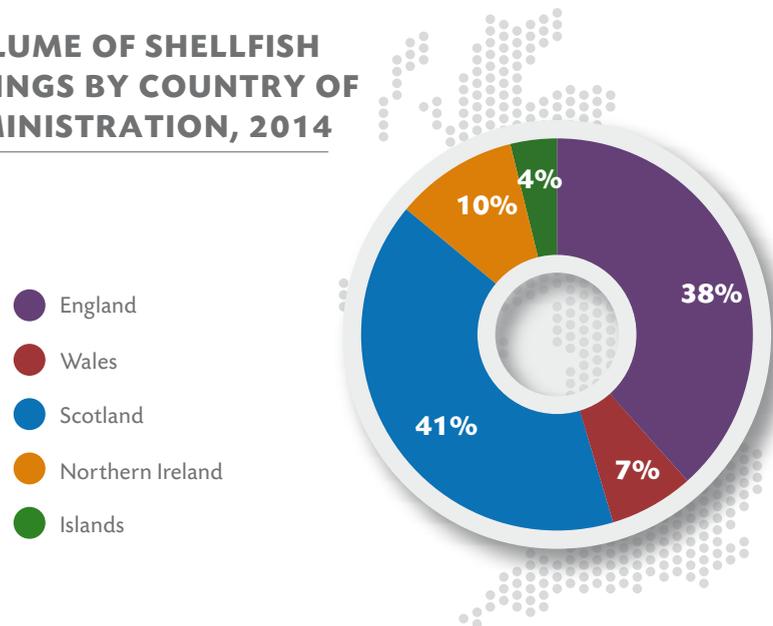
VOLUME OF UK LANDINGS BY SPECIES (THOUSAND TONNES)



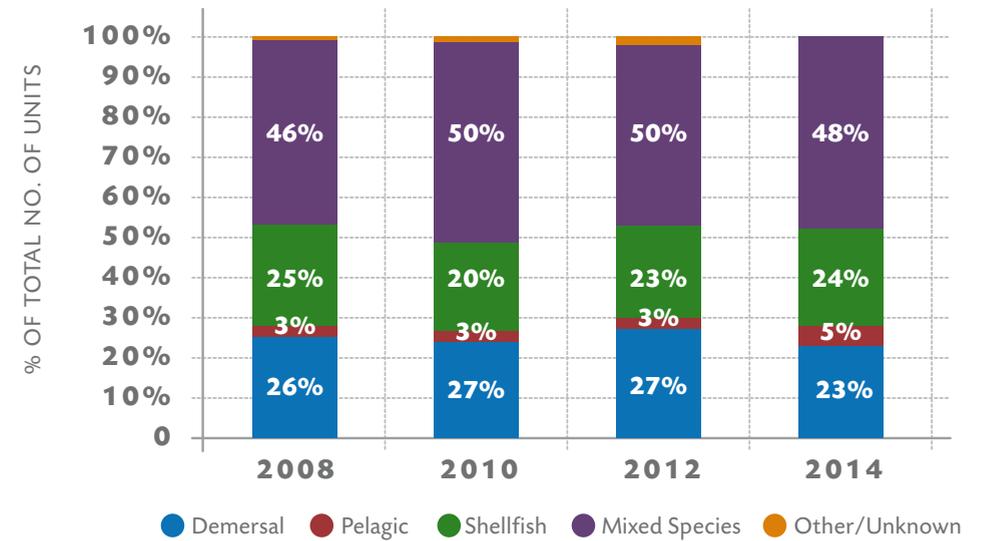
TOP 10 IMPORTERS OF UK SHELLFISH, 2014



VOLUME OF SHELLFISH LANDINGS BY COUNTRY OF ADMINISTRATION, 2014



SEAFISH PROCESSING UNITS BY FISH TYPE



Source: UK Sea Fisheries Statistics, 2014, MMO, 2015. 2014 UK Seafood Processing Industry Report, Seafish, 2015.

are the lowest value shellfish species but have almost doubled in average price since 2010. King scallop prices have fluctuated but have increased overall since 2000 and in 2014 were on average £1,957 per tonne.

In 2014 the UK exported a total of 500,000 tonnes of sea fish (excluding fish products) worth £1.6 billion. Of this total, 16% or £760 million was exported shellfish. The volume of total shellfish exports have declined by approximately 17% since 2010, although during this time exports of some species have increased. The greatest change has been in exports of lobster, increasing from 2,300 tonnes in 2010 to 9,400 tonnes in 2014, a greater than threefold increase. Nephrops exports in 2014 were less than half the volume

exported in 2010, however, during this time imports of nephrops have also declined, suggesting that the domestic consumption of UK landed nephrops has increased. The volume or quantity of shellfish imported into the UK has been largely static in the most recent five year period with shrimps and prawns making up the majority (69% in 2014).

Almost 90% of all UK exported shellfish goes to EU nations, with France being the biggest importer of UK shellfish. In 2014 nearly a quarter of the total UK exported shellfish went to France, i.e. 20,000 tonnes of shellfish worth approximately £150 million. Spain also imported large volumes of UK landed shellfish in 2014. Although exports to Spain in

2014 were lower in volume than in 2013, the average price per tonne was greater which could be due to a shift in the species imported.

In 2014, 24% of sea fish processing units handled only shellfish. These 81 units generated around 4,000 full time equivalent jobs. In addition, there were 66 mixed processors that carried out shellfish processing. Shellfish processors typically reported the largest supplier base compared to other fish type processors as they tend to buy raw materials from a number of sources, often directly from the vessels themselves. Consumer demand for shellfish products tends to be greater during the festive period and periods of good weather, especially if prolonged.

Quality Shellfish



Shellfish has long been a major component of the UK fishing industry. Much of our shellfish is caught by the vessels fishing our inshore waters which make up a large proportion of the UK fishing fleet.

Shellfish also supports numerous onshore jobs in processing and food service industries. Shellfish caught in the waters around the British Isles is recognised for its high quality and is often considered a luxury item. Much of our UK landed shellfish is not bound, however, for UK tables. Britain is a net importer of seafood and much of our shellfish is exported to other EU nations and across the globe. In recent years the recovery of European markets from the global recession, the expansion of international markets and the growing middle classes in developing nations have all been factors in the rising demand for UK landed shellfish.

Keeping It Fresh: Innovative Live Shellfish Storage

UK seafood has an excellent reputation around the globe and consumers have come to expect the very best from British boats, but keeping your catch fresh from sea to plate is not always easy. Maintaining quality is an issue that is made all the more difficult when dealing with live shellfish such as lobsters, crabs and nephrops. However, for some individuals every problem presents an opportunity. We spoke to Errin Todd and her team from Lobster Pod on their work to ensure that fresh shellfish always reaches the customer in the best possible condition.





Errin runs the Lobster Pod business with her husband Dr. Keith Todd, a marine biologist whom she describes as a “mad inventor”. Since 1998 the couple have been involved in designing, fitting and maintaining shellfish storage tanks. “We used to supply holding systems for live shellfish, however we found significant problems with the products available; filters and such were often designed for aquariums and simply weren’t fit for purpose when it came to storing large quantities of shellfish. Sand filters would clog up and cause loss of pressure or leaks and cheap pipework and high pressure pumps were easily damaged which could lead to the loss of stock. We found that we were spending more time fixing damaged and broken systems than installing new ones and

that was what led us to develop our own systems, including traditional lobster holding tanks and the new Lobster Pod.”

The new, more robust system is designed with the seafood industry in mind. Shellfish are stored in fish boxes and stacked in the cupboard-like Lobster Pod where the unique controlled atmosphere system provides optimum conditions in either a mist, spray or flooded mode depending on the application.

A high proportion of the fresh shellfish caught in the UK is destined for export to Europe, being transported by road and ferry to restaurants in France and Spain.

During long periods in transit high levels of stress caused by sub-optimal conditions in containment can lead to mortalities. “We carried out a significant amount of research and found an average of around 15% mortality in the transit of live shellfish. That is 15% of the product that can’t be used and a significant impact on the economic efficiency of the supply chain”, explains Errin. “These factors all feed into the price that fishermen

receive for their catch and the value of the industry as a whole. For example, if you take a typical large load of shellfish being transported to Europe which may be worth in the region of £80,000, a 15% loss is £12,000. It is not a small amount of money we are talking about here! It was clear to us that there was a real economic need for improvements.”

In trials the Lobster Pod has achieved around a 99% survival rate of shellfish during transit and some trials have had a 100% survival rate, a significant improvement.

“Deoxygenation, overcrowding, crushing and a build-up of waste products in shellfish tanks during transit leads to stress, and stress leads to mortalities. In some cases, which we call the “bad apple” effect a single tainted or damaged lobster can pollute a system and lead to the loss of an entire truckload of shellfish”, says Errin. “Fishermen go to great efforts to catch our seafood and it is such a waste to lose fish and hard earned income because of poor conditions during transit, which is why we developed the technology.”

The Lobster Pod transportation system incorporates a refrigerated misting system which keeps shellfish cool and oxygenated with fresh seawater. As Errin explains, the misting system also means that the volume of water required to maintain the shellfish is drastically reduced: “A traditional storage system may require as much as 2-4 tonnes of standing water per tonne of product. By using a mist we have effectively reversed this ratio, as the Lobster Pod can handle 2-4 tonnes of stock for just one tonne of seawater. As a result fuel costs during haulage are drastically reduced too.”

“On a single trip from Scotland to Spain a typical truck fuel bill could be reduced by £500 by using the Pod.”

“To begin with we focused our efforts on haulage and restaurants though interest from the industry and we have now developed a smaller model of the Lobster Pod that can be used on board a fishing vessel”, says Errin.



“This half size Lobster Pod can store 80-100kg of shellfish and is made using lightweight polypropylene to make it more appropriate for use at sea.”

The Lobster Pod can also be used for storage either short-term at the quayside or longer term for the Christmas market. Shellfish are kept in the Pods in the flooded mode with additional filtration, ensuring confidence of supply throughout the year. The storage Pod can be used for multi-species and can hold from 80kg to over 20 tonnes.

“It hasn’t been easy; our biggest difficulty was securing start-up finance for the venture and the patenting process. Fortunately we won the Scottish EDGE Awards for our innovative product and business”, says Errin. Though despite the difficulties she enjoys her work immensely, “We just love working in this field. We love problem solving and working to make a real difference. Not to mention the great characters we meet in the industry! At the moment we are really focused on live shellfish but in the future we see no reason why we couldn’t branch into other areas. We are already interested in storing and transporting other seafood products and seaweeds. The concepts are the same when dealing with perishables and I am very excited about the future!”



Weighing Up Costs And Benefits

There is always a cost for innovation and fishing businesses looking to use the Lobster Pod will be looking at an initial spend of between £4,500 and an amount in the tens of thousands with the average customer currently spending just under £30,000. Vessel owners continue to battle tough economic conditions and many will be looking to tighten purse strings as a way of maintaining profitability and although the lobster pod offers a reasonably quick return on investment they may find it difficult to make the initial outlay. However, every fisherman knows the importance of keeping their catch in excellent condition and making the most of what they have. This ethos could not be any clearer than when dealing with fresh shellfish: it is not simply a case of making the most of what we have in our oceans, but making the most of what we have already expended energy and money on. It is up to individuals to balance the risks of this investment with the potential rewards outlined by Errin and her team.

Quality will always be one of if not the key concern when taking the catch to market. Innovative projects such as the Lobster Pod are likely to play an important role in increasing the profitability of the seafood industry and to help maintain the UK’s reputation as a reliable supplier of high quality products.

To stay up to date with Errin’s progress and visit the Lobster Pod [website](#) or follow them on [Twitter](#).



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