

QUAY ISSUES



EXPLORING THE STORIES BEHIND THE DATA: A LOOK AT THE SEAFISH FLEET SURVEY 2017

Contents

Is Selective Gear Financially Viable? 6



Getting the Best Performance from Gear 10

- At sea with Andrew Mack



Fish Size and Sales Price 14

- The value of improving selectivity



Reputation Matters 16

- Linking vessel reputation and fish price



Quay Figures: Lobsters 21

Looking After Lobsters 24



A Healthy Catch 28

Tracing Fish from Sea to Plate 34

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2017 at a glance

Quay Issues is a magazine for the fishing industry. It tells stories of innovation and best practice that drive industry forward, and looks at financial trends in different parts of the catching sector. In this edition, we explore some of the major successes and challenges facing industry.

The UK government has confirmed that they intend to retain the principal of a discard ban after Brexit. With just over one year left until the ban is fully implemented, trials of selective gear are underway across the country, but gear also needs to be financially viable. To find out more about measuring the economic effectiveness of gear, turn to [page 10](#).

In 2016, the average landed price per kg of UK commercially caught seafood was the highest it's been since 2012. The average landed value of seafood has been on an upward trend for several years now, and prices in the first half of 2017 were strong again. Read more about the factors that can influence fish prices at market on [page 14](#).

In recent years, further landing controls have been introduced for lobsters. The landing of berried lobsters has now been banned in UK waters, and there have been changes to the Minimum Landing Size (MLS). Find out more about the vessels targeting lobsters and the effect of stock enhancement programmes on [page 21](#).

Fishing safety standards are improving; in the 12 months following September 2016, there were no fatalities at sea. General health is also important, although often overlooked by the self-employed. Find out about the work of some organisations to help fishermen access healthcare on [page 28](#).

Bass is a highly prized species. Controls on bass landings have recently been introduced, including changes to MLS, limits to the amount each vessel can land, and a ban on catching bass with certain gears. On [page 34](#), we look at an innovative bass tagging project in Wales to increase supply chain traceability.

Of course, there are many inspiring stories from across industry, and many challenges too. Results from our latest economic survey show that there is still a lot of uncertainty surrounding Brexit, making it difficult for fishermen to make decisions about the future of their businesses. Other topics commonly reported by fishermen included difficulty finding crew, gear conflict, and access to quota.

As well as our economic survey, this year we also undertook a pilot survey to gather information about the people working in our fishing industry. The results of the pilot were published at the end of October, and we expect to roll out the survey fully within the next couple of years.

The economics team at Seafish would like to thank everyone who participated in our surveys this year. Whether you contributed financial data or simply had a chat with one of our researchers, without the continued support of skippers and vessel owners, we would not be able to provide essential economic information about the fishing fleet to you, the wider industry and to government.

Is Selective Gear Financially Viable?

In July 2017, North Sea cod was officially certified as sustainable by the Marine Stewardship Council (MSC). This was a huge step forward for industry, which came after years of hard work and dedication, fishing under the North Sea cod recovery programme since 2003. Changes to fishing gear for vessels operating throughout the North Sea, West of Scotland, and the Celtic Sea played a major role in the technical solutions to cod recovery, which were developed, tested, and implemented by industry.

The new discard ban, known officially as the Landing Obligation, echoes many of the challenges of the cod recovery programme. Under the discard ban, fishermen across the country will likely need to change their gear and their fishing patterns to avoid catching unwanted fish and running out of quota. Once again, industry is leading the way in developing technical solutions that are both practical and economically effective for fishing businesses in different parts of the country.

Phasing-in the discard ban began in January 2015. By January 2019, the regulation will apply across the board to all quota species in all EU waters, and the UK government

has announced that they want to retain the principal of a discard ban after Brexit. Already, fishermen across the country are working with net makers and scientists to come up with ways to fish more selectively. Prototype gears are being tested and fine-tuned to ensure the best performance, and some are proving hugely successful.

“The selectivity journey started in the late 1970s,” says Mike Montgomerie, Seafish gear technologist. “Much of the work then focused on reducing catches of small haddock and whiting; that was when coverless trawls and square mesh panels were first trialled.

“Learning how to reduce cod catches was a problem because there had been very little research on cod in the past, so there was no evidence about how they behaved in the vicinity of fishing gear. Square mesh panels are not effective for cod because, unlike haddock and whiting, they don’t have the same escape behaviour to rise up to escape danger; you practically have to go in and kick them out of the net.”

Since 2003, fishermen have worked extremely hard to come up with ways to avoid catching cod. Over several years, fishermen across the country took part in selectivity trials,

‘Industry is leading the way in developing technical solutions that are both practical and economically effective.’

testing many different devices, including grids, inclined panels, square mesh panels, and coverless trawls, among others. Mike went on to say, “The cod recovery programme created an appetite amongst industry for exploring gear selectivity.”

This ‘appetite’ for innovation ultimately led to the successful development of fishing gear to respond to the challenges of the cod recovery programme, and could do the same for the discard ban. The discard ban will require going a step further to increase gear selectivity. Instead of limiting just one species from the net, gear may have to limit several species at the same time, some of which may have different escape

behaviours. This is no small feat for industry, but early trials have indicated some successes.

Although not suitable in all areas, the Swedish grid is one device that has proved successful in many trials. The Swedish grid is a requirement in some international nephrops fisheries because it is extremely effective at eliminating fish from entering the cod-end. For that reason, some UK fishermen dislike it, particularly those with quota for fish, which can make up a significant portion of their income.

So having selective gear is not necessarily enough for a financially viable industry. Gear must also be economically

effective over the long term to ensure sustained profits. Some fishermen may also have to change their fishing patterns, such as time of day and fishing grounds, to maximise the benefits from using more selective gear. In the transition to full implementation of the discard ban, there is an opportunity for industry to explore methods that maximise returns from selective gear, as well as avoiding unwanted fish.

‘Gear must also be economically effective over the long term to ensure sustained profits.’



In a gear trial, it is important to be able to assess the economic performance as well as catch rates. If a skipper chooses to adopt selective gear, they must be confident that fishing with it will be profitable in the long term. Economic effectiveness has often not been tested in gear trials, although skippers can sometimes estimate general effects on catch value and fishing costs.

In November 2017, Seafish released a guide to help skippers estimate the economic effect of experimental gear. Created in partnership with fishermen, net makers and scientist the guide is designed to be easy to follow on-board while undertaking gear trials. The guide provides step-by-step instructions about which financial and catch data to collect, and is designed to be used along with a spreadsheet calculator. Skippers or on-board scientists can enter data about the existing gear and experimental gear into the spreadsheet calculator during or after trials. Once completed, it calculates expected economic performance of the experimental gear compared with the existing gear.

The results can help skippers to make choices about whether or not to adopt a new piece of gear or to keep fine-tuning and testing. When making these choices, it is vital for skippers to understand the economic effectiveness of gear over the long term, and whether or not it will be suitable for their business.



‘Seafish released a guide to help skippers measure the economic effectiveness of experimental gear.’

Using the guide and spreadsheet calculator will also ensure that economic assessments of different gears are comparable. Skippers will then be able to easily compare the economic effectiveness of different gears that have been measured in the same way. This will help inform purchase decisions about the best option for each business.

The cod recovery programme was a success because of the hard work and dedication of industry. Speaking of the new MSC accreditation for North Sea cod, Mike Park, chair of the Scottish Fisheries Sustainable Accreditation Group, said: “This is a massive development for the catching sector and is

a testament to the power of collective action. The years of commitment to rebuilding North Sea cod has shown that fishermen are responsible and can be trusted to deliver stable and sustainable stocks.”

Fishermen have proved with the cod recovery programme that they can find solutions to complex problems, and catch fish sustainably. Cod avoidance was the start of the selectivity journey, but we still have a long way to go to meet the requirements of the discard ban. Early adopters of selective gear have shown that, with hard work and persistence, they’ve made improvements on early designs and fine-tuned gear to ensure the best performance.

You can download the financial assessment spreadsheet and accompanying guidance documents from the [Seafish website](https://www.seafish.co.uk).

For more information write to us at: geartrialeconomics@seafish.co.uk

Getting the Best Performance from Gear

– At sea with Andrew Mack

Gear is a costly investment for all fishing businesses. As the discard ban is implemented for all quota species and waters, many fishing businesses may find that they need to purchase new gear to reduce catches of unwanted fish and comply with the new regulation. To make sure that investment in gear pays off, it's important to know that it's the gear for the job and for the vessel, and that you get the best performance from the gear.

Making sure that gear is performing at its best can be difficult to achieve. Operating conditions, such as towing speed and gear set-up, as well as natural variations, such as sea conditions and species availability, all directly affect gear performance. Understanding what influences gear performance requires in-depth knowledge and experience of the fishing grounds, species behaviour, and the gear itself. In July, *Quay Issues* joined Andrew Mack, owner and skipper of *MFV Bright Ray*, on a fishing trip in the Firth of Forth, to put a new piece of gear through its paces.

Andrew trawls for nephrops mostly in the Firth of Forth. He's been in the industry since he was 15, and knows these grounds intimately. "I've always been in the fishing industry," says Andrew, "starting off as a deckhand on my uncle's boat, before getting my own. I mostly



MFV Bright Ray fishing in the Firth of Forth

fish in the Firth of Forth, it's close to home, which is better because it means at the end of the day I can get home."

Andrew bought his first boat in 2011, and has gradually reinvested profits back into the business. He hopes to replace his current boat soon, with something newer and more fuel efficient. "It's difficult setting up a business," he says. "The start-up costs are usually very

'Correct gear set-up helps ensure the best catch value for each litre of fuel used.'

high, although I got lucky and bought my first boat very cheap. Once you have the business, it's easier to get a loan, but you still need security or a big deposit, so there's usually a large up-front cost."

Fuel efficiency is a big priority for Andrew. He started his business at a time when fuel prices were high, and he has always sought out ways to keep fuel use to a minimum. Andrew sees reducing spending on fuel as an easy way to reduce operating costs, it also allows him to pay his crew a good wage and retain more profit to reinvest in the business.

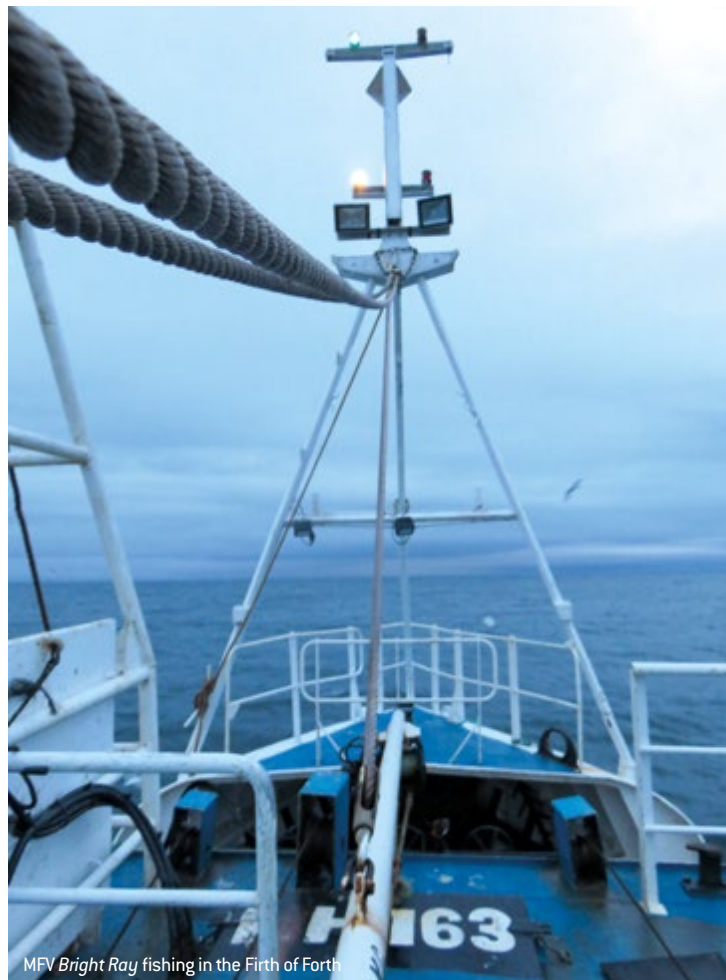
Andrew's curiosity about ways to enhance fuel efficiency has led him to experiment with fishing gear as well. "I love to play around and see the effects of changing the gear and set-up," comments Andrew, "and I hope to get involved with some formal gear trials soon."

Correct gear set-up helps ensure the best catch value for each litre of fuel used. For many, this may become more important, as the cost structure of some fishing businesses may change as a result of the discard ban.

On our trip in July, Andrew was using a coverless otter twin trawl with low headline height, short sweeps, and 200 mm square mesh panels. "The benefit is that this net is very light," says Andrew, "this means it's much better for fuel consumption. Coverless trawls are also cheaper to tow because of less drag, and they help avoid catching [unwanted] fish, again meaning less weight and drag."

Andrew has taken the new net to sea several times to experiment with gear set-up and get the best performance. "There's a slight issue with this net," notes Andrew, "which I'm trying to work through, because it's no use buying a net, and if it doesn't work properly the first time, returning it to the net maker.

'Getting the best performance from gear is about trial and error, which can be risky.'



MFV Bright Ray fishing in the Firth of Forth

What I do is try the net a few times, and if I keep coming up with the same problems, I call the net maker to tell them, feed back to them what's happening, and discuss solutions that could make it work."

Getting the best performance from gear is about trial and error, which can be risky. If experimentation leads to poor results, the business may have to take the hit of spending on fuel and crew, and loss of precious fishing time. But if experimentation leads to better performance in the long run, the risk can pay off.

Risk is reduced when there is more information about the possible outcome of changes. Sweep length, door spread, and towing speed, to name a few, are all factors that can influence gear performance. It's not always possible to see how gear behaves when any of these factors are changed. Without specialist equipment, often the only indication of the effects of altering gear set-up is what's brought up in the net.

There are opportunities for fishermen to learn more about gear performance. The Seafish trawl gear technology training

at the SINTEF Flume Tank in Denmark is designed to show what actually happens to gear when the set-up is altered. Scale models of trawl nets are placed in a glass fronted tank to simulate towing. Seafish Gear Technologist Mike Montgomerie said, "The training course allows fishermen to see first-hand how minor alterations affect net performance under the water, and many are surprised at what they see."

The Seafish Gear Database also features a range of information on commercial fishing gear. The database includes free technical information sheets and various calculators to help figure out the correct set-up for different gears.

'Making sure gear is set up correctly and performing at its best can help ensure the best return on investment.'

There are lots of other factors, such as sea conditions, time of day, and recent fishing pressure that can also affect catch rates. When experimenting with gear, it's important to understand those effects as well, and account for them when looking at the results of each tow.

Experimenting with gear requires a methodical approach. With so much to remember about the effects of gear set-up and other factors that can influence catch rates, it can be easy to lose track of the results

of each change, as Andrew explains, "When I'm figuring out a new piece of gear, I often write down the changes I've made and the effect, otherwise there's a lot to remember."

Recording changes in this way helps Andrew to benchmark his performance against previous results.

Each net is different, and over time Andrew has built up an in-depth understanding of his. "Each skipper knows their own gear," he says. "They could go on board someone else's boat and not know how to get the gear working properly."

Learning the optimum set-up of gear takes time and a lot of trial and error, but making sure gear is set up correctly and performing at its best can help ensure the best return on investment. Experimentation can be risky; if changes don't work, there can be short-term losses, but if that experimentation leads to better performance in the long run, it could result in greater fishing income or cost savings.

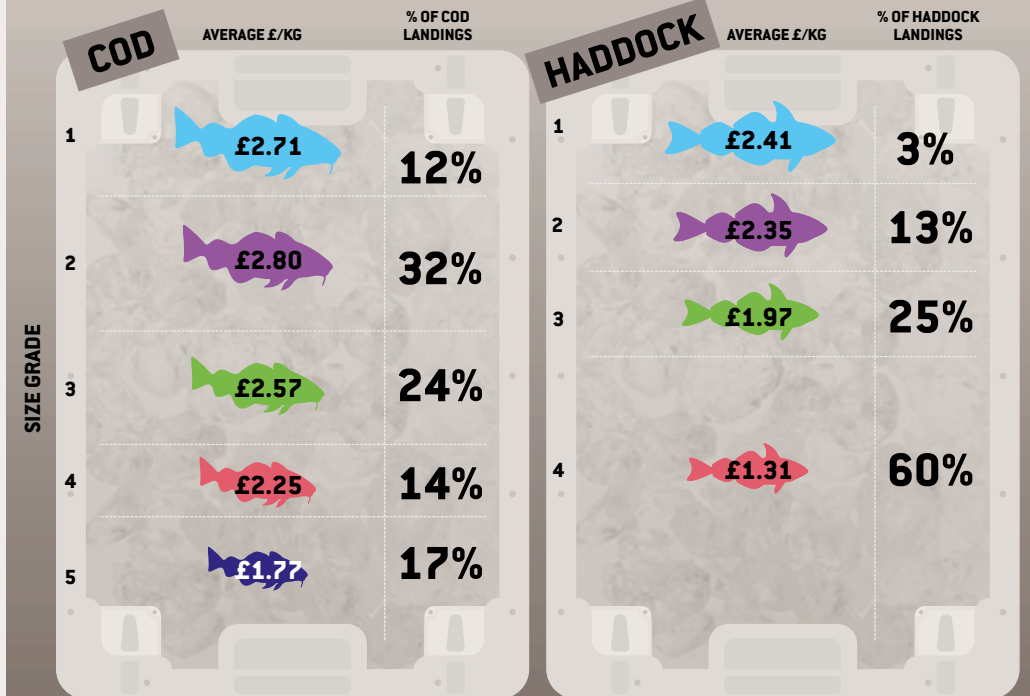
As the great US inventor, Thomas Edison said: "Negative results are just what I want; they are just as valuable to me as positive results. I can never find the thing that does the job best until I find the ones that don't."



Fish Size and Sales Price

- The value of improving selectivity

AVERAGE (2013-2015) FISH PRICE PER KG BY SIZE GRADE



SOURCE: WITTEVEEN, 2017. FISH PRICE FORMATION OF COD AND HADDOCK AT THE PETERHEAD AUCTION: ANTICIPATING THE ECONOMIC IMPLICATIONS OF THE LANDING OBLIGATION FOR THE UK WHITEFISH FLEET.

A 2017 Seafish study estimated that, if catch selectivity isn't improved, fishermen operating whitefish vessels could lose more than £20,000 in gross annual fishing income from cod and haddock landings because of landing smaller fish that they previously would have discarded.

To find out how much fish size influences prices at auction, Seafish studied detailed data on cod and haddock sales at the Peterhead auction between 2006 and 2015. The study revealed that, from 2006 to 2015, the average price of the smallest size grade of cod at Peterhead was worth nearly 35% less than the largest size grade. Over the same period, the average price of the smallest

size grade of haddock was worth nearly 46% less than the largest size grade.

As fishermen know, smaller fish typically achieve a lower price per kilogram at auction than bigger fish. Once the discard ban is fully in place, unless fishermen change their gear or fishing patterns they are likely to land a larger share of smaller, less valuable fish than they did before.

Seafish Chief Economist Hazel Curtis said, "Fishermen know that under the discard ban, it makes sense to reduce their catch of small and undersized fish. Now we can see the size of the hit they might take on gross earnings if they don't change their catching tactics

and methods. These results can help fishermen consider how important it will be to avoid catching small fish."

Skippers may be able to reduce their catch of smaller, less valuable fish, and offset some of these financial losses by increasing gear selectivity and making more deliberate decisions about when, where, and how to fish. Improving catch quality and communication along the supply chain could also help increase the value of landings under the discard ban.

The full Seafish technical report on price variation according to fish size grade was published in October 2017 and is available on the Seafish website.

Reputation Matters

- Linking vessel reputation and fish price



Prices achieved at market can vary a lot. On a single day in July 2017, large haddock sold for prices between £2.60/kg and £3.20/kg at Peterhead auction. The amount that buyers are willing to pay is influenced by many factors, including the quantity and quality of fish available on that day.

A 2017 Seafish study found that landings from some vessels achieved an average annual price of up to £3.00/kg more than other vessels at the Peterhead market in 2015. The average annual price of large gutted haddock was roughly £1.30/kg for vessels at the lower end of the price spectrum, compared to around £4.30/kg for those at the upper end. For large gutted cod, the price difference was also notable, but not as pronounced, with some vessels achieving an average annual price of roughly £1.50/kg compared to others getting over £3.50/kg. The lost revenue for those at the lower end of the price spectrum can quickly add up and harm financial performance over time.

Catch quality can affect buyers' decisions at auction, and merchants are often willing to pay more for better quality fish. Buyers' preferences for quality may therefore explain some of the large variation in price within each species and size category.

A local whitefish merchant at the Peterhead auction, who prefers to remain anonymous, said he chooses to buy from "the boats that look after their fish better."

He also reported that he judges catch quality based on both



'Buyers' preferences for quality may therefore explain some of the large variation in price within each species and size category.'

vessel reputation and a visual inspection of the fish on the day of the market. This merchant stressed that if fish quality isn't up to his standards, he won't buy it.

The merchant discussed a range of factors that influence fish quality, including the accuracy of size-grading and on-board weighing scales. Buyers are

looking for specific sizes for certain customers, and when sizes aren't properly separated at the market, they aren't as keen to buy. He also discussed the importance of on-board handling and quality control, reporting that, "fish are kept in much better condition when they are cleaned, packed away, and chilled better and faster."

He went on to say that the speed and skill with which the fish are handled and stored is related to the number and proficiency of the crew, reasoning that a larger or better-trained crew is able to handle fish more quickly or carefully and bring higher quality fish to the market. Based on his experience, the merchant suggested that, "if a vessel begins to turn out their fish well, everyone will start to look for him at the market."

"If a vessel begins to turn out their fish well, everyone will start to look for him at the market."

Improving catch quality could therefore help some fishermen achieve a better price for their fish.

Sally Skakle, who retired as Quality Advisor at Peterhead Port Authority in July 2017, described the importance of the presentation of fish at the market. She commented that, "there are definitely boats that take the time and effort to present their fish properly."

Sally went on to explain that if fish are not carefully packed into boxes, it gives the impression that the people who handled it on board may have lower standards when it comes to other aspects of quality. If fish are poorly presented at

market, Sally said that "buyers may question how well it has been looked after while the vessel has been at sea."

Sally explained that, over time, each boat develops a reputation for how well the crew looks after and grades the fish. She also said, "products from vessels that have a good reputation for quality are often in particular demand and can achieve really good prices."

A vessel's reputation can therefore help buyers determine who to buy from, how much to pay, and may explain some of the variation in the price of fish landed by different vessels to the Peterhead auction in 2015.



"The quality of catch and vessel's reputation comes down to the skipper," said Sally. The skipper has ultimate responsibility for addressing any quality issues that arise on board, and for ensuring the crew is properly trained in fish handling and catch quality.

Skippers can establish and maintain a high quality standard by giving crew ongoing feedback and training. Sally described a recent example of a skipper who noticed that his fish was not gutted up to his usual standards because of faulty equipment. She said, "the skipper took two or three fish out of the box, and was away back to the boat to alert his crew to the problem right away and make sure that it was fixed."

A 2003 Seafish study found that fishing boats that land better quality fish had higher fishing income and crew share. So, investments in crew training to improve catch quality can benefit both the skipper and the crew. For Fred West, skipper of MFV *Castlewood*, the best way for vessels to improve catch quality "is to build a good experienced crew that the skipper can trust to take care of the fish."

'A reputation for quality means that the fish landed by that vessel will be more attractive to buyers.'



Fred West, skipper of MFV Castlewood.

Fred believes that he gets good prices for his catch because he and his crew “land good quality fish and buyers know my boat has a good reputation.”

Engaging with sales agents and fish merchants at the auction can also help skippers get a better idea of their own vessel’s reputation, and how their catch quality is perceived by potential buyers. Fred said, “I’m very often at the market to watch my fish getting sold and to talk to buyers and salesmen.”

By visiting the auction from time to time to see how his fish is selling, Fred is able to get a better idea of what influences price and what the buyers are looking for.

Fred isn’t the only skipper to engage with buyers in this way. Sally described a recent interaction between a merchant and a skipper at the Peterhead auction. The buyer gave feedback to the skipper, explaining that the grading was a bit poor that day, which was why he was less keen to buy it. Sally said: “The skipper took the feedback very well; he would rather have known that

there was a problem and what the problem was than to think people just weren’t paying the money for his fish.”

Visiting the market can therefore provide skippers with valuable feedback and demonstrate to buyers that they have a commitment to maintaining and improving the catch quality.

Sales agents can also provide valuable insight into how well fish sells. Salesmen at the Peterhead auction mentioned that they often try to inform the skippers they work with about why they achieve certain prices. When skippers communicate with buyers and sales agents, they can discover what qualities merchants are looking for, get feedback about catch quality, and figure out how to alter catching and handling practices

‘A vessel’s reputation can therefore help buyers determine who to buy from, how much to pay, and may explain some of the variation in the price of fish landed by different vessels.’



MFV Castlewood at sea.

to improve quality and achieve better prices.

Skippers can quickly develop a good reputation for catch quality, and buyers will take note of this. A reputation for quality doesn’t necessarily mean top prices every time. The price a merchant pays on the day will still depend on an inspection of the catch, their customers’ requirements, and the amount and quality of other fish in the market. A reputation for quality means that the fish landed by that vessel will be more attractive to buyers, and will therefore be in greater demand. Improving catch quality and developing a superior reputation for quality could help some achieve a better price for their catch, leading to higher gross fishing income, profit, and crew share over time.

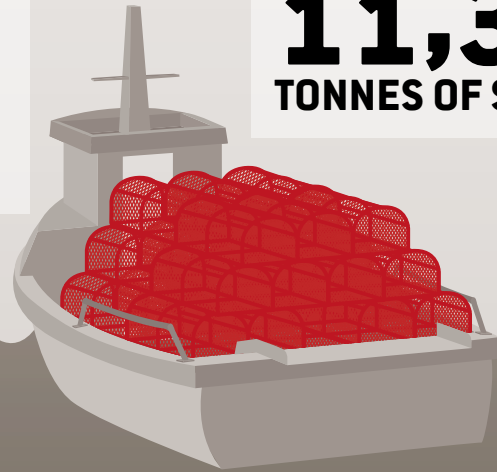


Quay Figures: Lobster

UK LOBSTER VESSELS IN 2016

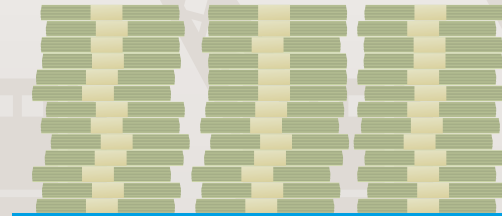
In 2016, lobster was the top species for

1,125 VESSELS



In 2016, these vessels landed a total of

11,308 TONNES OF SEAFOOD



In 2016, the average annual fishing income for lobster vessels was

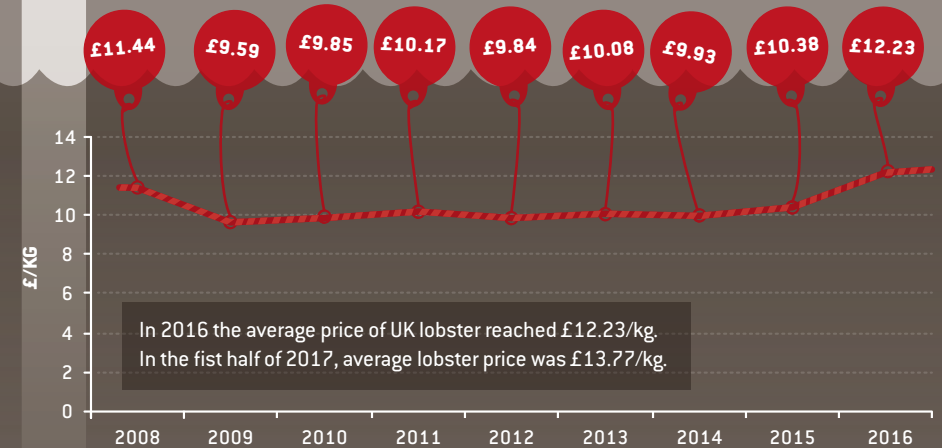
£37,000



In 2016, the average annual profit for each lobster vessel was

£8,500

FIGURES ADJUSTED FOR INFLATION



In 2016 the average price of UK lobster reached £12.23/kg. In the first half of 2017, average lobster price was £13.77/kg.

AVERAGE LOBSTER PRICE (£/KG), 2008-2016

Lobster vessels earned fishing income from a range of species in 2016:

72% LOBSTER



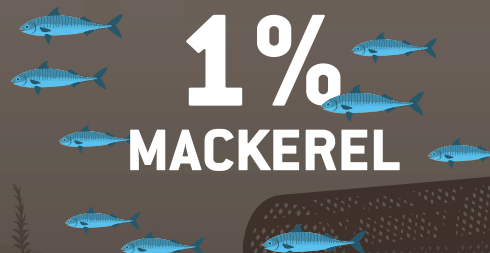
22% CRAB



2% WHELK



1% MACKEREL



3% OTHERS



SOURCE: FLEET ECONOMIC PERFORMANCE DATASET 2005-2016, SEAFISH. UK SEA FISHERIES ANNUAL STATISTICS 2016, MMD, 2017.

Looking After Lobsters

Lobsters are an important species for the UK fishing industry. They are the highest priced species landed in the UK and have a strong export market. In 2016, the average UK price of lobster was at its highest ever on record. In the lead up to Christmas 2016, lobster prices soared, reaching an average of nearly £19 per kg. Total UK lobster landings in 2016 were worth around £40 million.

The potting sector is largely considered to be a very sustainable fishery. The capture methods are highly selective, and undersized or v-notched lobsters that are released back into the sea have a strong chance of living and growing before going on to breed and add to the stock.

But lobsters are still a vulnerable species and are sensitive to a range of pressures, including habitat loss, marine pollution, and rising sea temperatures. The open seas can be a dangerous place for lobsters, especially juveniles, because of the risk of predation from other sea life.

‘The open seas can be a dangerous place for lobsters, especially juveniles.’

Various organisations across the country, in collaboration with the fishing industry, are working on stock enhancement programmes to boost the survival chances of young lobsters in the wild and helping to ensure the continued sustainable harvest of lobsters in the future.

The National Lobster Hatchery in Padstow is a marine conservation charity established in 2000. The aims of the hatchery are stock enhancement, research, and education. The hatchery works with local fishermen to collect and release native lobsters in the wild.

In Cornwall, special permission has been granted to some local fishermen, allowing them to land berried lobsters to the hatchery. When they capture one at sea, they can contact the hatchery to arrange delivery to the brood stock facilities. Berried lobsters are stored in tanks until the eggs hatch, and the hens are then v-notched and returned to the wild.



After hatching, the larvae are transferred into rearing tanks and fed a diet of plankton. The rearing process is intensive. Water temperature and quality are constantly monitored by the hatchery team to ensure conditions are optimum for growth. It is estimated that less than 1% of lobster larvae (about 1 in every 20,000) survive this delicate phase of their life cycle in the wild. In the hatchery, optimal growing conditions and zero risk of predation mean that their survival rate is increased to an estimated 40%.

At three months old, measuring just 1 cm in length, the juvenile

‘Stock enhancement programmes are thought to play a huge role in helping to boost wild populations.’

lobsters are ready to be released into the wild. Local fishermen and dive groups deposit trays of juvenile lobsters in lobster pots or directly onto the sea floor in sheltered areas around the coast of Cornwall and the Isles of Scilly.

The released juveniles burrow into the seabed, and remain there for the next two years of their life while they grow. When they emerge, they tend to stay close to the area where

they were released, adding to the local population. Lobsters usually reach maturity after five to eight years, depending on the sea temperature. At this stage of their life cycle, they have a carapace length of about 80 mm, below UK minimum landing size, giving the adult lobsters an opportunity to reproduce.

Stock enhancement programmes are thought to play a huge role in helping to boost wild populations. Many salmon fisheries depend to a huge extent on similar stock enhancement programmes. With improvements in micro tagging and genetic tagging technologies, it will be easier to estimate the effect of stock enhancement programmes on wild populations.

Other hatcheries exist around the UK. Orkney Sustainable Fisheries now manage Europe’s most successful lobster hatchery, releasing about 100,000 juvenile lobsters into the wild every year. Their goal is to create a completely sustainable lobster fishery in Orkney.

Kilkeel, Anglesey, and North Berwick also host lobster hatcheries involved in stock enhancement. The Holderness Fishing Industry Group has also recently submitted plans for a new state-of-the-art lobster hatchery in Bridlington, as part of a major harbour redevelopment programme.



Checking lobster for eggs



‘Fishermen, working with scientists, are helping to boost wild lobster populations around the country.’

Fishermen, working with scientists, are helping to boost wild lobster populations around the country. The stock enhancement programmes ensure the best possible start in life for young lobsters, massively increasing their chances of reaching maturity. These hatcheries also provide a failsafe in case of population crashes, as has already happened with Scandinavian and Mediterranean stocks.

In 2016, 1,125 vessels in the UK depended on lobster as their major target species. The continued sustainable harvest of lobsters, and therefore also the profitability of the businesses that rely on them, depends on having a good breeding stock in the water, and for juveniles to have a good chance of reaching maturity and breeding.

Martin Gilbert

Owner and skipper of
MFV *Tizzardleon* and
MFV *Serene*
– Newquay



‘I’ve been fishing for lobster out of Newquay for 43 years. Since the hatchery started, I’ve seen the lobsters get better every year, there are more of them on the ground and a bigger size range too; from just a few centimetres up to large adults. Right now, for every one lobster I keep, I return two or three undersized ones back to the sea. That’s our catch for the future; in a few years, they’ll be big enough to land.’

‘The hatchery has made a really big difference and it’s very important not just for the future of lobster stocks, but also the future of the fishermen who catch them, and the buying public who enjoy eating them. I think the hatchery also helps with all other fish stocks, because some of the young lobsters may be eaten by different species; they’re part of the food chain. I have seen the stocks increase and get better in our local waters, which I think is mostly down to the hatchery breeding programme. Having a good lobster stock is especially important now, as there are so many restrictions on other species.’

A Healthy Catch



A recent survey of fishermen in Cornwall found that more than a quarter had suffered a health problem in the last year, but did not seek medical help for it. Health problems can mean lost fishing time and can have serious consequences. Health-related issues can increase the risk of accidents at sea or can make the consequences worse, especially if working alone. General health conditions can significantly affect survivability in cold water in the event of a fall overboard.

There are many factors affecting fishermen's health, the main one being the nature of their work. Fishing is a physically demanding job, and sleep patterns can be irregular. Handling gear and machinery

'Commonly reported health problems among fishermen are muscular and skeletal problems, back pain, fatigue, lack of sleep, and stress.'

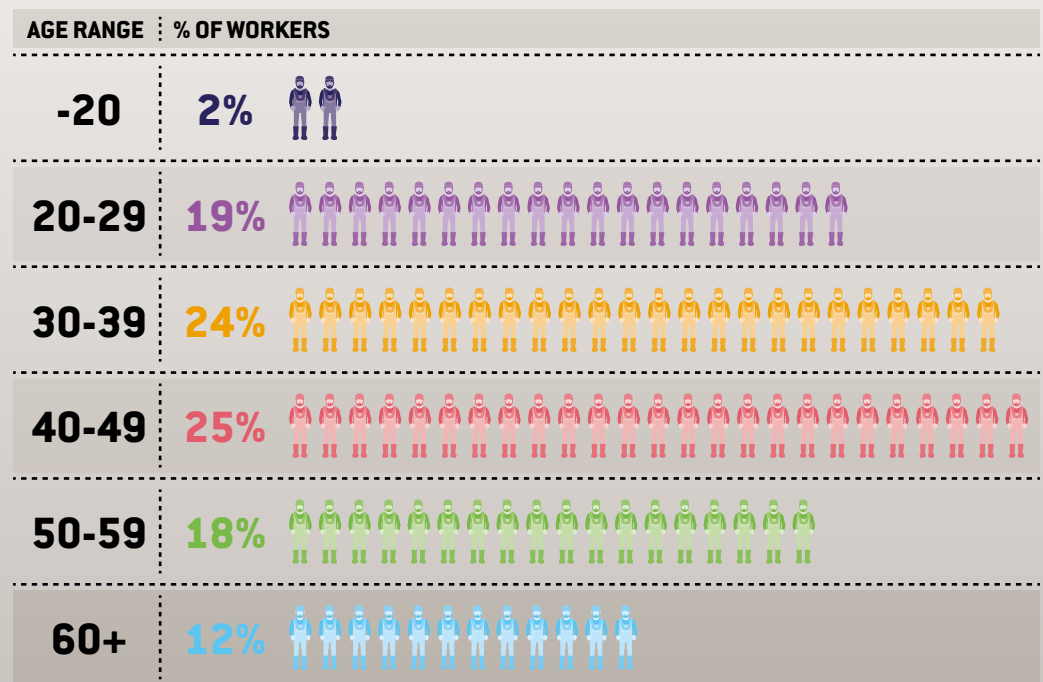
can also result in injuries, cuts, or infections. Commonly reported health problems among fishermen are muscular and skeletal problems, back pain, fatigue, lack of sleep, and stress.

Demographics also play an important role in fishermen's health. The difficulties of recruiting young people into the industry mean a significant proportion of fishermen are middle-aged or older. This is a stage in life when the risk of experiencing health issues,

such as type 2 diabetes or high blood pressure, can increase. The long working hours in an exposed environment often make it difficult to maintain healthy eating, drinking, and rest patterns, which can lead to health problems or make existing problems worse.

Stress is another major factor affecting fishermen's health. Stress and uncertainty, which can sometimes be caused by changes to regulations or economic pressures, can take a toll on health over the long run.

AGE RANGE OF FISHERMEN



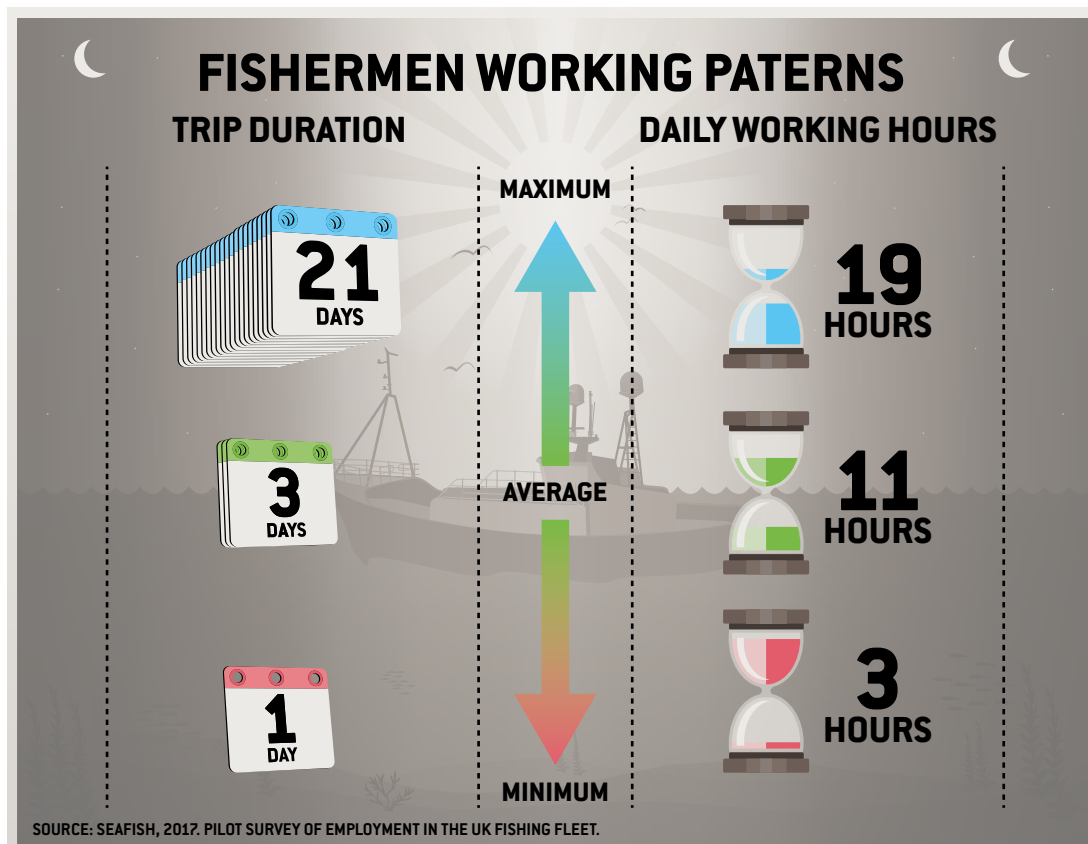
SOURCE: SEAFISH, 2017. PILOT SURVEY OF EMPLOYMENT IN THE UK FISHING FLEET.

Combined, these factors can result in certain health issues being fairly common among fishermen, and fishermen have been described as an at-risk group by the NHS. The Maritime and Coastguard Agency is now preparing to implement the new Work in Fishing Convention 2017 (C188), developed by the International Labour Organisation. The goal of the convention is to improve working conditions for fishermen worldwide, including protecting the health and fitness of workers.



Understanding what prevents some fishermen from accessing healthcare is essential to ensuring healthy businesses and a thriving industry. Dr Rachel Turner from the University of Exeter led a recent research project on fishermen's health in collaboration with Cornwall Council Public Health, the Fishermen's Mission, and Cornwall IFCA.

‘Around two-thirds of the fishermen we interviewed said they tend to keep their feelings and worries to themselves.’



Rachel explained that, “Cornwall Council Public Health had identified fishermen as a group that may be at risk of poor health outcomes. Anecdotally, people suggested that fishermen don’t go to the doctor, and we realised that there was a lot we didn’t know about how fishermen use healthcare and the constraints they face. We wanted to investigate this issue further, because this information could help support more effective public health interventions.”

Rachel’s research found that the operational times of medical services onshore often conflicted with fishermen’s working patterns. The opening hours of GP practices, the timing of appointments, and waiting times often clashed with the needs of fishing businesses.

Perception of health problems can also play a role in decisions on whether to seek healthcare. During her research, Rachel identified another barrier that may prevent fishermen from visiting a doctor. “Around two-thirds of the fishermen we interviewed said they tend to keep their feelings and worries to themselves,” says Rachel, “and about half of them

Jo West

co-owner of MFV Copious – Mevagissey

“I’m the co-owner of Copious along with my husband and oldest son. My family crew the boat, and we also have another crew member on a seasonal basis. I work onshore doing the bookwork, logs, accounts and keeping everything running.

“The boat becomes the number one task in your life; you can’t do anything before looking at the forecast first, you can’t plan anything in advance, but you get used to it.

“I got involved in a focus group on women in fisheries in Cornwall, where we discussed, among other things, health problems in fishermen and how difficult it can be to deal with them. Fishing is hard work, it wears the body out, but fishermen tend to put health problems off, to keep fishing despite any problems, to earn the money. If you are the boat owner, particularly, you have a lot of responsibilities and bills to pay, so there is a lot of pressure to keep going to sea. You may also be the main breadwinner in your house. And getting an appointment for a GP is not easy if you can’t plan your days in advance.

“But in the end, you have to look after your health, at some point you have to stop and go see your doctor, for example. Not just for you, but for the rest of the crew as well. If it is just two of you at sea and one of you gets ill and can’t go on, you don’t want that happening at sea.

“It’s the skipper’s responsibility to oversee everything on board including the health of the crew. My husband and myself will insist that our crew take time off if they need it to recover. It’s hard enough to find good crew; you don’t want to lose them to bad health if you can help it.”

reported they don’t like asking for help. To improve fishermen’s access to healthcare we need to address these social norms as well as the operational problems.”

With no sick pay for the self-employed, many also find it difficult to afford to take time off fishing to see a doctor.

‘Fishing is such a physically demanding job that you have to be healthy to do it.’



John O'Connor

owner and skipper of MFV *Patrice* – Padstow

"I think it is too common among fishermen to ignore health problems, to put them aside, but this doesn't help you in the long run. By the time you get yourself checked, it may take more work to get you back to being healthy. And us fishermen, we get a lot of health problems, this is a very physical job. On top of that, it can be very stressing also, between financial worries, keeping up with regulation, etc.

"I see my GP once a year for a general health check. I will look at the weather forecast and tide times, and try to find a suitable time to take time off to go to the surgery. I also went to the quayside health checks a couple of times when they came here; it's a great idea to bring those checks to where we work. I definitely recommend it. Getting a health check early pays off, and it saves the NHS money in the long run too!"

Keith Dickson, Fishermen's Mission superintendent in Newlyn, has been involved in promoting health checks among local fishermen. "You can't book an appointment [with a GP]," says Keith, "you don't know if tomorrow you're going to be at sea, or when you're going to be back. Time spent in an appointment is money lost for fishermen."

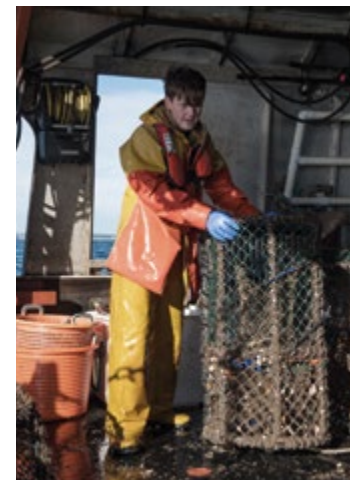
Several organisations in Cornwall have joined forces to help fishermen access medical services in a way that does not clash with their work. Keith explains: "For several years now we have been running NHS health checks on the quayside of main Cornish ports,

Judith Piper

finance director & acting MD at W. Stevensons & Sons Ltd. – Newlyn

"We have a system on our larger vessels where crew work on a rotation (standby) basis, two trips on, one off, so they have time off available for them if they need to make an appointment in a surgery, for example.

"Our non-standby crews make appointments between trips as required. If an appointment cannot be moved, or they are ill, resulting in the fisherman having to have a trip off, we try and find someone from the local area to cover, further afield if needs be. We also have a health and safety manager, who records any incidents so we know if there are any issues that may require medical follow up to ensure people get the treatment they need."



'Many find it difficult to afford to take time off fishing to see a doctor.'

in cooperation with the Men's Health team from Cornwall Council. The health checks are done in the Fishermen's Mission mobile office. We drive to the port in the morning, spend the day there, and the following day take it to the next destination, over a one or two-week period."

The Fishermen's Mission advertise the health checks several weeks in advance and talk to fishermen to encourage them to attend. The health checks can identify and give advice on problems such as high cholesterol, high blood pressure or diabetes. In Cornwall, they also cooperate with charities to offer dental checks, as Keith describes: "Somebody came in one day

with a toothache and he was fine that same afternoon; it's great to be able to help people in this way."

The quayside health checks in Cornwall have been very successful. "Initially some people can be reluctant," says Keith, "but it's becoming less of an issue every year as people become more familiar with this service."

Following the experience in Cornwall, there have been more initiatives of this type in Norfolk and more recently in Orkney and Wales.

It can be hard to reconcile commercial fishing and healthcare, but several organisations are working together to find solutions that help fishermen access medical help when they need it. As Rachel explains: "Fishing is such a physically demanding job that you have to be healthy to do it. So ultimately, good health underpins any fishing business."

Seafish is working with a range of organisations on the issue of fishermen's health. We would like to hear from fishermen who have been affected by any of the health issues mentioned. Please contact Denise Fraser: denise.fraser@seafish.co.uk.

For more information on health, read:

"A health workshop manual for working fishermen": a brochure produced by the Seafarer's Hospital with contributions from Seafish and others, which includes information and advice on the most common health issues among fishermen and useful contacts. Visit: seahospital.org.uk

Tracing Fish From Sea To Plate

Sea bass is a highly sought-after species, prized by chefs and, in particular, the Sushi trade. In recent years, bass has increased in popularity and farmed bass has satisfied much of the growing demand. Bass landings in the UK increased from around 720 tonnes in 2011 to over 1,000 tonnes in 2014. Sea angling, illegal fishing, and changes in sea temperature have also put increasing pressure on the species in recent years, and bass is now classified as a very high-risk species. In 2014, the UK government formally requested a suite of emergency measures to protect bass stocks in some UK waters.

The new conservation measures include a ban on pelagic trawling and drift netting for bass, new MLS, limits to landings caught using lines, and limits to bass caught by recreational anglers. Bass is a

high value species, so although landings make up a relatively small proportion by weight, they can provide a significant proportion of income for some fishing businesses. The new conservation measures are a serious worry for fishermen who depend on bass for a large part of their income, especially where restrictions on other species are also in place.

UK commercial bass fisheries are now almost wholly restricted to line-caught methods, and even that is subject to catch limits and seasonal closures. The remaining fleet that can still target this species are largely classed as small-scale, artisanal fisheries. The Welsh bass fleet is one such small-scale fishery that has been working closely with scientists and the government, to come up with solutions to help them cope with the new measures. *Quay Issues* caught up with

‘The Welsh bass fleet has been working closely with scientists and the government, to come up with solutions.’

some of the people involved to find out about the project.

In 2015, before the new regulations were brought in, the Welsh bass fleet was made up of 85 vessels, almost one-third of all Welsh vessels. The Welsh bass fleet consisted of small vessels, with an average length of 5.7m, mostly fishing out of ports in southwest Wales.

Bass was the main target species for those vessels, making up 90% of their total fishing income, with the remaining 10% from red mullet, thornback rays and mackerel. In 2015, the Welsh bass fleet landed 61 tonnes of bass, worth nearly £460,000. Bass landings by those vessels made up 8% of the UK's total bass landings.

The Welsh bass fleet was classed as a small-scale, artisanal fishery. Many of the vessels in that group were also classed as low activity, meaning their fishing income was less than £10,000 per year. Bass is a seasonal fishery, and many of the fishermen in that group supplemented their income with another job during low season.



Before the new conservation measures were introduced, the Welsh bass fleet used only rod and line and drift/fixed nets to catch bass. These are both classed as low-impact fishing methods because they are highly selective.

In April 2016, The Welsh Fishermens Association (WFA - CPC) in partnership with Succorfish launched a six-month pilot project to test different fish tagging methods. The main aims of the project were to test if fish tagging could enhance supply chain traceability, restrict the access to commercial markets for illegally caught fish, and provide more data on the bass stock to inform management. To ensure that the solutions were practical for fishermen, six Welsh fishermen became involved in the project to test different tags. Tom Rossiter, Head of Marine at Succorfish, explained that: "Fishermen went out and used a number of different tagging systems to find the ones that would work most effectively – essentially to test which were the best solutions for them."

Fishermen involved in the project tested three different tagging systems, as Tom explained: "The most popular option was the lowest cost, but there was also a time element involved in that it took time for fishermen to sort the tags prior to going to sea into bundles of 10 to deploy when needed. None of the options were perfect for everyone, but each had merits and we took feedback from the fishers to develop them."



Tags are attached to the bass after they were caught.

'The main aims of the project were to test if fish tagging could enhance supply chain traceability, restrict the access to commercial markets for illegally caught fish, and provide more data on the bass stock.'

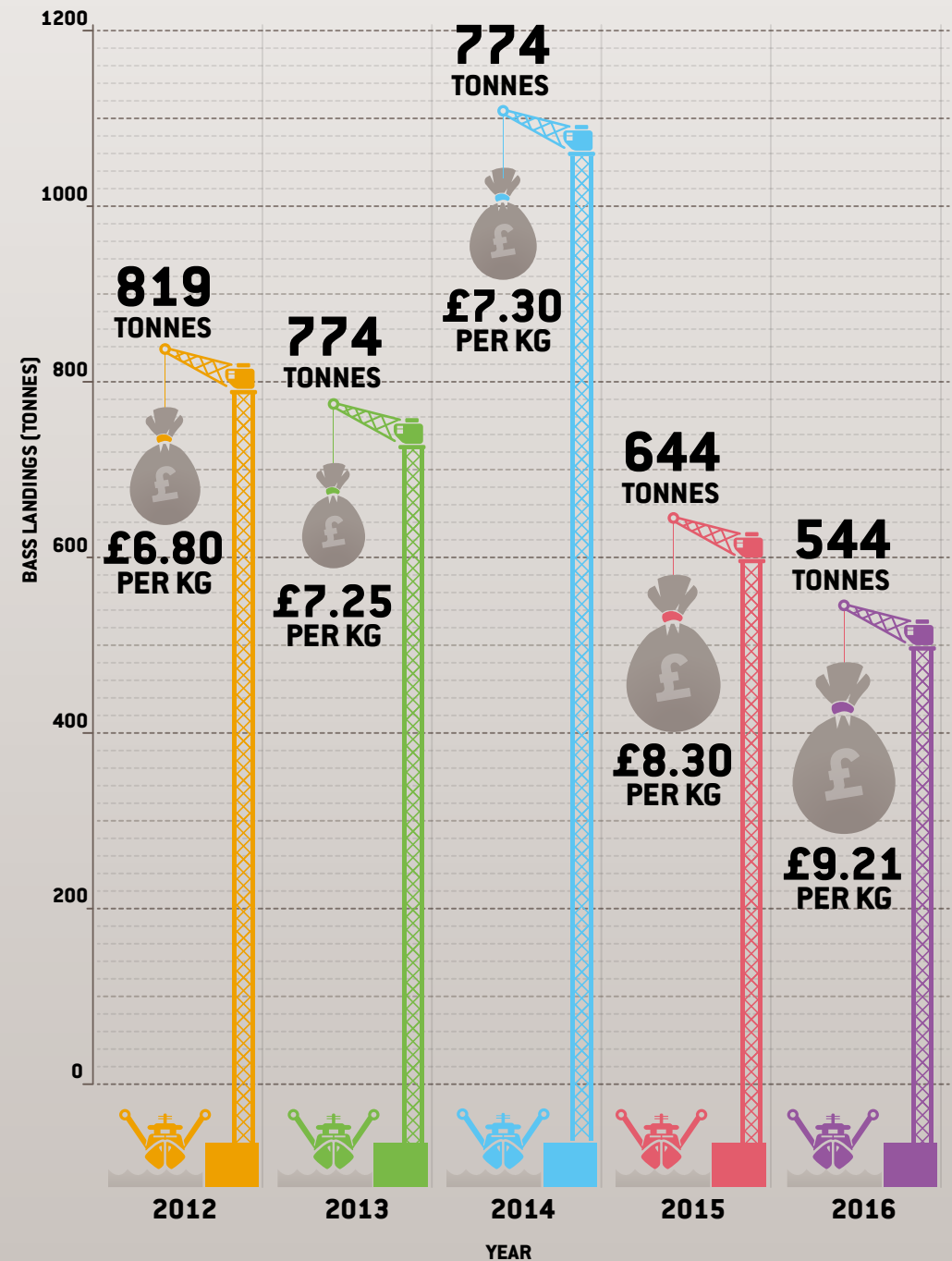
The carcass tags used for bass are very similar to those used in the agricultural industry to trace the movement of live animals and carcasses throughout the supply chain. The tags are applied to fish once caught, and each one has a unique serial number.

"The serial numbers from tags are entered into the Succorfish Catch App along with other catch data to provide full traceability," said Tom. "Further down the supply chain, the

serial numbers can be checked against data collected through the Catch App, so that buyers can confirm it is legitimately caught, and can find out where it was caught, when, and by whom. Fishermen can use the Catch App on its own to record data on fish catches, but it's most useful alongside the tags because they help to provide full supply chain traceability."

The tagging system involves additional time and cost for fishermen, however, there were

UK BASS LANDINGS AND AVERAGE PRICE PER KG 2012-2016



SOURCE: MMO, 2017. UK SEA FISHERIES ANNUAL STATISTICS 2016.

benefits too, as Tom explained. “One of the major incentives for fishermen to participate in this project was that the merchant involved was willing to pay a premium for the fish, because it can be fully traced down the supply chain, and the merchant has all the evidence he needs to prove the provenance and freshness of the fish.”

With provenance becoming more and more important in seafood supply chains, there is growing demand among leading restaurants for high-quality, fresh fish. The data linked to the serial numbers on the tags ensure that buyers further down the supply chain can make confident purchases. If adopted on a larger scale, the tagging system may help reduce access of illegally caught fish to commercial markets. “Another major motivation for the project was related to limiting the amount of black fish entering the supply chain,” said Tom, “because the tags each have a unique serial number, they can’t be forged, so when a buyer searches the serial number in the records they can see whether or not it’s genuine, commercially caught fish.”

The data gathered from the project was reported to the Welsh Government council in December 2016. With fishermen’s participation in the project, the findings will help to provide evidence on the bass stock and help shape future management of the species. “This project solves the information gap in a data-poor fishery,” said Tom. “Small-scale, artisanal fisheries

around the world are data-poor and the Welsh bass fishery is no exception. This project has allowed us to collect a large amount of data to report to industry and government, which will help aid management decisions in the future.”

The pilot phase of the project is now complete. The six volunteer fishermen helped to identify the best solutions that were appropriate and practical. Bass tagging in Wales is ongoing though, as Tom explained: “The project continues; the Welsh Fisherman’s Association (WFA-CPC) are managing the distribution of tags to Welsh

bass fishermen, and we [Succorfish] are managing and reporting the data. The project is very much driven by industry; and we hope that more fishermen will get involved.”

The Welsh bass tagging project is an excellent example of the industry working with scientists and the government to improve the local industry. The pilot phase has allowed fishermen to get involved from the beginning to choose the technology that’s most appropriate for them. Although the project is still in its early stages, the trial proved successful, and the project has been rolled out further this year.



Tagged bass ready for sale.



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