



Select Committee on the European Union

Energy and Environment Sub-Committee

Corrected oral evidence: Implementation and enforcement of the EU landing obligation

Wednesday 28 November 2018

10.10 am

Watch the meeting

Members present: Lord Teverson (The Chairman); Lord Cameron of Dillington; Viscount Hanworth; Lord Krebs; The Duke of Montrose; Lord Rooker; Lord Selkirk of Douglas; Baroness Sheehan; The Earl of Stair; Viscount Ullswater; Baroness Wilcox.

Evidence Session No. 1

Heard in Public

Questions 1 - 9

Witnesses

[I](#): Hazel Curtis, Chief Economist, Seafish; Dr Tom Catchpole, Principal Fisheries Adviser, Cefas.

Examination of witnesses

Hazel Curtis and Dr Tom Catchpole.

Q1 The Chairman: Good morning. I welcome everybody to the first evidence session in our new inquiry on the landing obligation that comes fully into force on 1 January 2019, which is only about a month away. I am very pleased to start with our witnesses, who will give us some background.

Members should declare their interests when they first ask a question. Until the end of January I am a board member of the Marine Management Organisation, so I have an interest from that point of view.

I remind everybody that this is a webcast session and is obviously being held in public. It is being transcribed. We will send a draft transcript to our witnesses. If there is anything in it that you think has been wrongly recorded, please let us know and we can change it. At the end of the session, particularly as we have back-to-back evidence sessions today, if there is anything you feel you did not have the opportunity to say, or there are things you want the Committee to decide, you are very welcome to write to us with further evidence afterwards.

Perhaps we could start by you introducing yourselves so that the public and those watching the webcast know who you are.

Hazel Curtis: I head up the economics team at the Sea Fish Industry Authority. Seafish is a public body, funded by the industry, and supports the whole of the seafood sector. I have worked for Seafish for nearly 19 years and have just about figured out some of what goes on.

Dr Tom Catchpole: I work for Cefas, which is the Centre for Environment, Fisheries and Aquaculture Science. It is part of the Defra family. I work as a principal scientist delivering applied science, quite often with the fishing industry, and I provide scientific advice to Defra.

Q2 The Chairman: It is up to you who leads on each question. You do not both have to answer all the questions, but I suspect that on all of them you will have your own expertise and view. What research has been undertaken on the landing obligation and the many challenges that we understand will arise when it is fully implemented on 1 January, and have any lessons been learned since the programme was supposed to start in 2016?

Hazel Curtis: A few years before that, in 2010-11, there were one or two different trials of having catch quota rather than landings quota. One operated in Scotland. There were about 25 boats with CCTV cameras in the scheme where cod was used as if it was under the landing obligation. I led some research interviewing fishermen and vessel owners to find out their experience of the scheme and how they went about ensuring that their cod quota did not run out during the year. We also interviewed some fishermen and vessel owners who had not been part of the scheme and looked at their experience. How did the existence of the trial and the different relationship those vessel owners had with cod quota affect the

rest of the fleet? That piece of research told us a number of things pertaining to the ability to avoid cod, and fish in different ways.

The other major piece of work we led at Seafish started in 2014 when we carried out a simulation model of what might happen with the landing obligation as it was implemented year by year. We looked at the catching history of the UK fleet of vessels over 10 metres in length dependent on quota stocks and what would happen if they continued to fish in the way they had been fishing, always remembering that that is not the point of the landing obligation. Would they encounter a choke situation? Would they still be able to fish all year if they had to retain on board everything they caught?

We worked with key independent consultants we know very well, and latterly we have also worked with Tom at Cefas in developing that model so that we can see what will happen at individual vessel level, at fleet segment level and in groups of similar vessels. On the whole, that research has shown that, if all the vessels fully comply with the obligation to retain on board everything they catch and land it all, they will run out of quota before the end of the year in the different sea areas. Different types of vessels and groups of vessels might run out of quota at different times of the year, which is what we call a choke situation.

A choke situation arises when you run out of one quota, with the expectation that you would not be able to continue fishing in that sea area with that fishing gear if there is a risk that you would catch more of the stock for which you have run out of quota. Some vessels have other opportunities; they could fish in a different sea area, or fish for non-quota stocks, but not all of them have that opportunity. Those are the two major pieces of work Seafish has been involved with that pertain directly to the landing obligation, and I can tell you much more about the results of those later as questions come up.

The Chairman: We will come to choke species next. When they ran out, was some of that in February or was it mostly in November? I know there was a dispersal, but perhaps you could give us an idea.

Hazel Curtis: Different groups of vessels have different degrees of choke problem, depending on the quota allocation they currently have. Some of them would run out early in the year, some would get halfway through the year, and some would get nearly all the way through the year. It depends very much on what you have been fishing for, what quota you have at the start of the year, and whether we assume that international swaps will continue and quota can move around the UK and so on.

The Chairman: I am sorry to be headline-ish about this, but what was the earliest time of the year one of those fisheries would run out?

Hazel Curtis: Again depending on all those [factors], when we first started to model, the nephrops trawl in the Irish Sea had a big problem with whiting by-catch.

The Chairman: Was that March? February? May?

Hazel Curtis: February.

Dr Tom Catchpole: One thing that can be said for the landing obligation is that it has been a catalyst for a lot of research. A lot of science has been done in the UK and elsewhere, including two substantial EU structural funded projects, one called DiscardLess, which Cefas contributed to, and another called MINOUW. A lot of science has been done to understand the implications of the implementation of the landing obligation.

Cefas has done a variety of different tasks. First, we looked at the estimates we had of current discard levels. We have an observer programme. Fisheries scientists go on board vessels and collect samples of the catch, and what is retained and discarded by fishermen. We collated that information and took it to the fishermen to try to understand the implications of implementing a discard ban. We went around the country to key ports to try to get some initial feedback as to what the main challenges would be.

We conducted a trial of a discard ban. We selected a range of vessels and asked them to bring in everything they caught. We tried to understand what the practical issues might be of handling and dealing with the material, bringing it all to the quayside, and where it all might end up. That led us to another piece of work to try to understand the potential commercial outlets for fish previously discarded but now required to come ashore. There are conditions on what can be done with the fish ashore. Fish below a legal size cannot be sold on the direct human consumption market, so they need to be dealt with by some other means. There are markets for that material, although the key finding is that the price differential between the human consumption market and other markets is huge, so there is no incentive to land very small fish for those other markets.

As Hazel mentioned, we modelled what the effects might be of introducing the discard ban and the landing obligation. There are two key components to the landing obligation. The first is that the fish have to be landed, unless an exemption has been authorised. The second is that it is a move towards catch quotas, whereby everything you catch is deducted from your quota. That is different from what went before, when only what was landed was deducted from a quota. Those are the two principal changes, and we are trying to establish what the effects might be. The key thing is that, when you are deducting what you catch from your quota and that quota is exhausted, you are required to stop fishing. That is termed a choke event. We are trying to establish when choke events might occur for different fleets and for which species there is a high risk of a choke event.

We have also looked at developing different fishing gear designs. The principle behind the landing obligation is to generate a direct incentive to avoid catching fish that you do not want. One of the mechanisms to

achieve that is changing the way you fish and changing the design of the fishing net. We have looked at trialling lots of different designs. Many of the ideas come directly from the fishermen themselves. Changing the design of the trawl will modify the catch.

The Chairman: We will come to the detail of that.

Dr Tom Catchpole: The other area we have worked on is understanding the survival levels of fish that are caught and then thrown back into the sea. Part of the landing obligation enables exemptions. One of those is for fish that show high levels of survival when they are returned to the sea, which makes sense. If the fish survive when they go back to the sea, it is better to put them back rather than bring them ashore when they are not wanted. There was not much robust evidence on the survival levels of discarded catches, so that is one area where we have done a lot of work.

The Chairman: Is there a lot more confidence in that area now? I do not think we will come to that later.

Dr Tom Catchpole: Yes. There is now an ICES working group dedicated to it as part of the advisory process that provides information to manage EU fisheries.

The Chairman: Are the species that can be put back into the sea listed? Are people aware of that now?

Dr Tom Catchpole: There is an annual evidence process where joint recommendations are put forward by Member States and evaluated by a body of scientists tasked by the EU Commission. On the basis of that evaluation, they decide whether the evidence supports an exemption. There are now exemptions in place, and new delegated Regulations come out annually to specify those exemptions.

Lord Krebs: What kind of evidence do you use to estimate the survival of discarded species?

Dr Tom Catchpole: It is not an easy thing to do. There are two principal methods. First, you can attach a data logging tag to a fish that has gone through the catching and sorting process, and release it. The fish will be returned and it might be recaptured, or some of the tags will pop off and float to the shore and be picked up by people walking their dogs and returned to the lab. It sounds far-fetched, but the return rates are very good. We analyse that data and establish the fate of the fish.

The other method is to take samples of the fish at the point they would have been discarded. We keep them in specially designed tanks and monitor their fate over a period of time. That gives us an idea of what the survival levels would be. There are assumptions associated with the estimates, but we feel we are getting a better handle on levels of survival for discarded catches.

Viscount Hanworth: Are there significant survival rates?

Dr Tom Catchpole: It depends on what you mean by significant. Under the CFP Article, you have to demonstrate high levels of survival, but it does not say what that means. What high means will probably not be clarified, but exemptions are now in place when there are survival levels of around 50% and upwards.

Q3 Lord Cameron of Dillington: Both from the written evidence we have received and from what you have just been saying it is clear that choke species are a serious problem. What research has been done on the economic impact of that problem? Is it particularly a UK issue? Are other European fishermen affected as badly as our fishermen might be?

Hazel Curtis: We have updated our research every year as we get another year's baseline data and as the rules for the landing obligation have changed every year since 2015. Now we have modelled what we think will happen in 2019 if all our assumptions come true. On the one hand, we are quite sure they will not all come true, but some definitely will. I have selected a couple of figures for you, to estimate the value of catch of demersal stocks and what we call forgone revenue—the value of fish that would remain uncaught after fishing had to stop. All the figures will be available in our written submissions.

After allowing for international swaps of quota, the survivability exemption and the extra quota uplift for the landing obligation, and after the UK fleet altogether reached a choke situation on North Sea cod, the value of catch of all the demersal stocks would be £140 million, but the forgone revenues that had to remain in the sea uncaught would be £85 million. In area 7, which is Cornwall and down that side, after choking on cod, the value of the whole catch would be £30 million and the forgone revenue would be £40 million. For the UK as a whole, in all the major sea areas, the value of the catch would be £205 million and the forgone revenue £165 million. Individual vessels and groups of vessels might do better or worse, but those are the headline figures.

Lord Cameron of Dillington: So that I can understand those figures, does the forgone revenue during the year take into account, as a sort of discounted possibility, that there will be more fish in future years?

Hazel Curtis: No; that is the forgone revenue of the annual quota. If the annual quota is this much but you can only catch that much because you have to stop fishing, it is the value of the fish you left in the sea for which you had quota that year.

Lord Cameron of Dillington: Could you answer the second part of the question about whether it is particularly a UK problem?

Hazel Curtis: We are both on the scientific committee Tom mentioned and we have liaised with our colleagues from other EU countries. The Danes and the Dutch have done similar types of research, and they face some issues in the Baltic Sea. Spanish work has shown that perhaps some people, but not everybody, might end up with a little advantage. It

is a mixed picture, but it looks as though the North Sea and area 7 will be problematic for everybody.

Lord Cameron of Dillington: One of the bits of evidence we have received indicates that in area V7 b-k haddock is a particular problem, whereby 60% of the EU stock exists in British waters but we have a quota of only 9% of the EU TAC. It seems strange. I am probably asking the wrong people, but how did we arrive at a situation where we have only 9% of that stock? Was the quota sold early on, or was it misallocated? How did it happen?

Hazel Curtis: That is part of the relative stability key and is based on catch history back in the 1970s.

Dr Tom Catchpole: It goes back a long way. For each stock there is a proportionate allocation to each Member State, agreed many decades ago.

The Chairman: It is historical evidence of relative stability that has stuck there. That is the whole issue.

Lord Cameron of Dillington: I thought it was based on historical catch. Have the haddock moved, or do we have more haddock in our waters now? Why is 60% of the stock in our waters, but we have only 9%? If it is based on historical catch, it seems a strange situation.

Dr Tom Catchpole: The stock area is a very large area of the sea. As you say, as the distribution of the fish changes, the fish will appear in catches where they have not been before and will disappear from catches where they were previously. At the moment, there are two issues.

There is the very small proportion of the quota allocated to the UK, confounded with the current distribution of haddock in that area. In addition, the process of moving from landing quotas to catch quotas has meant that what was previously discarded is now included in the quota, but the whole catch is still allocated on the basis of relative stability. Each Member State still gets the same proportion of the quota. If previously it had high levels of discarding, it will not get that amount of fish allocated to it; countries with lower levels of discarding will get proportionately more of the catch quota.

Lord Krebs: Hazel, is the UK's £165 million forgone based on no mitigation, or does it include it? The reason I ask is that the Wildlife Trusts refer in their written evidence to a choke mitigation tool developed by the NWWAC, as a result of which, if those measures were implemented, only six of 35 stocks would suffer a choke problem. Do your figures match theirs, or was it a different kind of analysis?

Hazel Curtis: The scenario in the modelling I referred to was after allowing for international swaps of quota to continue in the way they have done in recent years, allowing for the survivability exemption, and allowing for the fact that in 2017 some quotas did not have 100% uptake anyway, so it was not the value of all the quota that would be left in the

sea. It allowed for the quota uplift on stocks coming under the landing obligation, and it allowed for any stocks that had zero TAC to have a solution to those stocks. It did not include assumptions about increased selectivity or the ability of vessel operators to avoid catching the choke stocks.

The Chairman: In effect, it is business as usual, apart from the fact that you now have to land everything.

Hazel Curtis: For fishing patterns, yes. In some sea areas, the scope to avoid what would be choke stocks is greater than in others. As to whether a stock would be a choke problem, if a certain stock causes a choke, all the others are then a problem, inasmuch as you cannot catch them.

Dr Tom Catchpole: To give a bit of context, the figures are generated by a model. There are a lot of assumptions associated with that model, but it provides the most up-to-date information we have so far. It forecasts for only one year, so we are describing the problems we anticipate in 2019.

In the scenario Hazel is talking about, you can calculate the UK deficit. How much additional quota would be required for all vessels to be able to fish throughout the entire year under a business-as-usual approach? That is down to single figures as a percentage of the total UK quota. The amount of additional quota that would be required is relatively small. However, it is linked to particular stocks that are highly restricted, so you need only one stock to trigger a choke point and there is then a chain reaction that means you are unable to catch many other stocks.

Q4 **Viscount Hanworth:** To what extent can the adoption of more selective fishing gear reduce the challenge caused by choke species?

Dr Tom Catchpole: Over several decades, there have been many trials looking to improve the selectivity of fishing gears. It has been done in the UK and elsewhere in the EU. It has been demonstrated that it is possible to modify the composition of catches. Historically, it was about trying to avoid catches of small fish. More recently, it has moved towards trying to avoid certain species—the species from restrictive stocks that you are trying to avoid to be able to carry on fishing.

There is good evidence that it is possible to modify the composition of catches by changing gear and utilising behavioural differences between species that respond differently during the catching process. Some species, such as haddock, might move up inside the trawl; others, such as cod, will stay on the bottom of the trawl. If you provide escape opportunities at the top of the trawl, you enable the escape of haddock while maintaining catches of cod. That is one example.

The potential to use gear to mitigate choke events will depend on the species for which choke is a risk; some species are easier than others to select from a trawl. We do not really know how far it is possible for fishermen to go in improving the selectivity of their trawls. We do

scientific trials; we get a result and share it, but the idea of the landing obligation is to try to create an incentive so that there is an economic advantage in avoiding those catches by modifying trawls and doing other things. We have not yet got to the point where that incentive has started to bite. I do not think we really fully know the potential to modify and improve selectivity. There are a lot of options.

Viscount Hanworth: I am interested to discover what sort of leverage there is in that connection. Maybe you can answer that. It has been asserted that the phenomenon of choke species is a symptom of ecological degradation. Would you accept that?

Dr Tom Catchpole: You will have to explain that to me.

Viscount Hanworth: The fact that we now have serious restrictions with certain choke species is symptomatic of the fact that there has been overfishing, inept fishing, or whatever, and sudden ecological degradation has taken place and the ecology has been adversely affected. That is an assertion made in some of our evidence.

Dr Tom Catchpole: It is probably not the main driving factor.

Hazel Curtis: It is to do with the allocation of fishing rights.

Dr Tom Catchpole: It is more to do with how quotas are managed and distributed. There is an argument that, if quotas were higher and there were more fish in populations, you could go further before encountering a choke.

Viscount Hanworth: So everything would increase proportionately.

Dr Tom Catchpole: I would have to go back to our model to try to work out the implications for different species.

Hazel Curtis: Gear selectivity can certainly improve the situation for individual vessels, but overall some of the choke stocks are currently modelled as caused by one group of vessels targeting, say, white fish. No matter how selective people were in trying to catch nephrops, the choke situation would still occur, because it would be driven by people trying to catch white fish, and they would have already gone to quite large mesh sizes.

Q5 **The Earl of Stair:** I have two declarations of interest. I am a trustee of the Galloway Fisheries Trust, and I am chairman of a district salmon fishery board.

Moving away from selective fishing gear and looking at quota elements, which I believe can be redistributed between different vessels and groups, to what extent could the redistribution of quota reduce the impact of choke species?

Hazel Curtis: To a large extent, in short. Quota units, and the right to catch a tonnage of fish in a calendar year, can be moved among vessels, either within the same producer organisation or between different

producer organisations. There are international swaps, and leasing of quota is sometimes done in exchange for money, but internationally it is typically done by swapping quota for quota, so there is a kind of barter system of quota in one stock for quota in another. That can make a big difference.

In our modelling work, we looked at what would happen if people had only the quota they were allocated at the start of the year versus the quota they ended the last year with, after all the trading and international swaps. That can make a really big difference to the degree of choke. In some sea areas and for some vessel types, it would make the difference between being able to fish for maybe only 60% of the days at sea they had last year and, after swaps and moving quota around, fishing for 98% of last year's days at sea. It can make a big difference, but in some sea areas and for some gear types it does not make much difference.

The other key thing is that there is no mechanism at the moment to oblige anybody to move quota around. It is a commercial transaction: "I'm not going to catch my monkfish this year and I will lease it to you". At the moment, there is no mechanism to make people do that. When we get into 2019 and each Member State is anxious about its own choke situation, they may or may not be so ready to trade internationally.

The Earl of Stair: You said "at the moment" on two or three occasions in that answer. The question is about where we will be in the future and how ready fishing craft owners and groups will be to give up some quota in order to avoid chokes.

Hazel Curtis: Exactly. One can imagine that people would be reluctant to trade it away early in the year. Because we have not got there yet, you can imagine what you would do. You can imagine that people are thinking, "I need to lease that out for a lot of money because I need to buy more of that quota. I need to get the most possible for my monks so I am going to hang on a bit". It is all going to be new.

The Earl of Stair: Which would be the best organisation to co-ordinate and organise that?

Hazel Curtis: The producer organisations deal with all quota trading and report to the MMO, Marine Scotland, or whatever, which quota units have moved between POs. The Government only go to PO level in enforcing quota for the producer organisations. For under-10[metre]-vessel fleets and those that are not in a producer organisation, the Government go directly to vessel level. The producer organisation has to make sure that as a whole its own vessels do not exceed the quota held altogether by that PO.

The Chairman: Do you predict that there will be a lot more conservatism, or less risk taken, over quota swaps as the system starts? I am sorry. That is a leading question.

Dr Tom Catchpole: It is difficult to say because, on the one hand, the landing obligation will only work if quota movement becomes more efficient. On the other hand, the risks of not having quota are much higher under the landing obligation.

The Chairman: To be clear on quota swaps, you cannot swap between, say, area 7 b and area 7 c, even though there might be common stock that does not understand the boundaries and swims between the two.

Hazel Curtis: Each quota is for a defined sea area, which might be 7 b-k, or 4 a, b and c in the North Sea. The only situation that might resolve is with hake in the North Sea and west of Scotland, we are looking at merging there.

Dr Tom Catchpole: There are examples where a biological population is managed separately by two different quotas, but there can be arrangements agreed at the December Council negotiations for a limited amount of fish to be transferred from one region to another.

The Chairman: That is useful.

Viscount Hanworth: Can you draw a distinction between intranational and international swaps? To what extent are swaps of quota conducted between national organisations rather than within a national organisation?

Hazel Curtis: I do not know the order of magnitude. Some POs trade 400% of their original starting quota, and some POs trade only 2% of their original starting quota. The MMO would have that information.

Viscount Hanworth: But it is mainly within the nation rather than between nations.

Hazel Curtis: Only the Government can do international swaps. The POs might organise them with a PO in Denmark, but the Government have to transact it.

Viscount Hanworth: It is difficult to find any indication.

The Chairman: Perhaps our clerk could ensure that we have those figures. They would be useful, but we are probably asking a bit too much here.

Q6 **Viscount Ullswater:** I have a declaration of interest. I am a trustee of a landed estate in Cumbria that has fishing interests in the Solway Firth.

You talked about smaller boats, the under-10-metre boats, having quota fixed to the boat. Is that inflexible? Could you arrange flexibility between those boats in order to alleviate the problem?

Hazel Curtis: As it stands at the moment, the devolved administration would allocate to the owners of boats under 10 metres a monthly allowance for quota stock. They do it basically by guessing or modelling how many boats they expect to take that up. If it is more than they

expect, the next month's quota has to be less and so on. They juggle it like that through the year and try to get to the end of the year with the correct amount of quota fully taken.

Could it be done differently? Absolutely, but it would mean new legislation and quota arrangements. You could in theory individualise the allowance for the whole year, but there is no immediate plan for that.

Viscount Ullswater: Thank you for explaining it.

Q7 **Baroness Sheehan:** We have already touched on parts of my question. Lord Cameron talked about some of the anomalies in the allocation. Does the research suggest that total allowable catches and exemptions are set at the right level?

Dr Tom Catchpole: Total allowable catches are set through a process that is separate from the landing obligation but connected. Numerical assessments are made of fish stocks and that generates scientific advice. That goes to the Commission, which then puts forward its preferred proposals on catch levels. Those are negotiated by Member States with the Commission and the Council.

Whether the TACs are set at the right level comes down to the management objectives. The UK and other EU Member States have signed up to achieve certain reference points for stocks that are to be fished at sustainable levels by 2020. That commitment has been made, so the quotas are agreed on the basis of reaching those levels.

Exemptions sit within the landing obligation arena. There are two different types of exemptions. One is survival, which I have mentioned: exemptions under the landing obligation on the basis of high survival. The other is called de minimis and is conditional on one of two things; either you demonstrate that it is very difficult to improve selectivity in a fishery or that there are disproportionate costs for landing and handling the fish and bringing them ashore.

How you demonstrate those things is rather subjective. The amount of fish that is exempt on the basis of de minimis is up to 7% of the total catch down to 5%. There are ambiguities around what total catch means, but at the moment it is interpreted as the total catch of the quota stock associated with that exemption. There is no scientific justification as to why it is 7%, 6% or 5%.

Hazel Curtis: Whether the TACs and exemptions are set at the right level to achieve the stock sizes that the UK and the EU have signed up to achieve is one question; the landing obligation and the desire to avoid choke situations is a different question. At the moment, achieving MSY and avoiding choke are not compatible if you still want the current fleet size to fish all year long. It's not compatible at the moment.

Viscount Hanworth: To what extent has the Commission departed from scientific recommendations?

Hazel Curtis: The Commission does not depart far, does it?

Dr Tom Catchpole: No. There are some departures from the science advice, but it tends to follow it. Tracking the number of stocks that are at maximum sustainable yield, which is the objective, is fully documented.

Viscount Hanworth: In the past, there has been a strong aspersion that the Commission has ignored scientific recommendations.

Hazel Curtis: It is not the Commission, but Member State fisheries ministers.

Viscount Hanworth: The bargaining process has resulted in something that does not follow the scientific advice.

Hazel Curtis: That has been alleged. The records are all there.

Q8 **Baroness Wilcox:** I come from a family with small inshore boats in the West Country.

I have two questions. First, to what extent do you believe that the landing obligation is effectively monitored and enforced at present? Secondly, how ready do you believe the UK is to monitor and enforce effectively compliance with the landing obligation from January 2019?

Dr Tom Catchpole: The consensus is that the landing obligation is not being effectively monitored. That is based on information from a variety of sources. The conclusion was made by the Commission, but there is also information from the levels of unwanted catches and the evidence associated with changing fishing operations. Although there has been a four-year period in which the implementation phase has occurred, the lowest fruit tended to be picked at the beginning, which is probably quite predictable. The risks associated with that were not great in the first few years, but they are increasing and will increase again next year in the absence of effective monitoring.

Hazel Curtis: On whether the UK is ready to effectively monitor and enforce from January, there is some consensus about the fact that, because you are no longer monitoring what happens at the quayside but what happens at sea, to enforce it effectively you need observation at sea, which could be some kind of remote electronic monitoring devices on vessels or CCTV. I am not aware of any immediate plans to implement those.

You can take a risk-based approach, which seems to be the way Member States are moving; reference catches are observed by scientists for the species composition of the catch and fish size composition of the catch and compared with what other vessels are landing. Do they have a remarkable absence of small fish? What happened there? You can potentially identify where the risks of non-compliance are, but, if we had full compliance, we would also have choke and tied-up fleets. That is the way it looks at the moment.

Dr Tom Catchpole: That is the challenge. Monitoring and choke risks have become inextricably linked, and that has had an effect on the ability to conduct monitoring. It is also a fundamental shift, which is not an easy thing to do practically: changing from monitoring at the quayside and getting accurate estimates of what is being caught at sea is very challenging.

Hazel Curtis: The changes to fishing patterns that people would have to make to comply are substantial. Each person has to figure it out for themselves and their own business: "How can I do this? How can I make this work?", or, "Can I make this work?" It is a substantial challenge.

The Chairman: On enforcement, would it just be easier to do as some other non-EU nations do and say, "You can't discard"? Would that not make the whole thing simpler from a regulatory enforcement point of view? Why have the exemptions at all? Let us just make the thing simple.

Hazel Curtis: It is not so much the enforcement of the exemptions. It is the enforcement of people not discarding. It would certainly be simpler, but would it be more effective in constraining total catches and total mortality in those fish stocks? Perhaps not.

Dr Tom Catchpole: You are still left with the same challenge. You have to monitor what has been caught at sea.

Hazel Curtis: Somehow.

Dr Tom Catchpole: Or be confident that nothing is being discarded at sea by some technologies being applied on vessels.

The Chairman: You are saying that it is really a stark choice between everybody tying up and enforcing this thing. We have two choices: either we pretend to enforce it or we let fishermen have a living. Are those the alternatives?

Hazel Curtis: Pretty much.

Dr Tom Catchpole: The emphasis probably needs to shift away from the choke risks. We should be moving towards trying to generate good data and evidence, working with fishermen so that they can demonstrate they are avoiding as much of the unwanted catches as possible. We need to come up with a mechanism and framework to enable that.

Hazel Curtis: That is a good positive answer. Minimising discards would be much easier to achieve.

The Chairman: Do you believe that the regulation is flexible enough to allow that pragmatic approach, or are we going to be infracted?

Hazel Curtis: We are not legal experts.

The Chairman: It may not be your area.

Dr Tom Catchpole: We live in that area, but I think that is the challenge. Can we find a route that enables us to get where we want to go? What constrains us is setting quotas in some cases and trying to hit MSY limits, but it is an artificial goal if the catches are not being monitored and are beyond the TACs that are set because they are not being monitored. Constrained by the legislation, we will not be able to achieve what we think we can achieve.

Lord Rooker: I do not understand this. I understand from background reading and a briefing last week that it has been five years in planning. If there is a big row in January and a catastrophic problem, and people say, "This is another failure of the Common Fisheries Policy", and this, that and the other, who has failed in their responsibility in the past four years to phase this in so that there is effective monitoring and enforcement at the point when the landing obligation comes fully into force?

Has there been a failure somewhere? Was it not fixing the quotas right each December, or has it been a failure by Cefas, Defra, or the fishing industry to bring it to the point where it is ready? I do not understand why nothing appears to have been done in preparation, so there is no effective monitoring or enforcement when we are only six or seven weeks away from full operation of the system. I do not understand where the failure has been.

Hazel Curtis: As the landing obligation has been implemented to an increasing extent every year over the last five years, a tremendous amount of work has been done by the Government and industry to work out what next year's plan will be. It is a fundamental turning upside down of how things were. A great deal of work has been done on working out what the plan would be in each year up to 2019. That has been the focus of the efforts on the whole. I am sure that people in Government have been preparing for monitoring and enforcement. That is not a field I work in directly so I cannot observe exactly what they have done, but I am quite sure they have not been doing nothing.

Dr Tom Catchpole: I agree that it is difficult to understand. I think it is because not enough was done soon enough. There is a multitude of reasons for that. At every level, every actor involved will have done something that slowed progress. You could say that everyone is to blame - from the fishermen through to the scientists and policy officials and the high-level groups where different ministries put together a plan each year for how they want to implement the discard ban - but at all stages, more could have been achieved more quickly. I think that is the case.

Lord Rooker: Thank you for being so frank. There has been a failure all the way through the chain.

The Chairman: I do not think we should press these two witnesses too much on that.

Lord Rooker: It does not appear that the failure is the policy; it is the implementation and planning of it. That is the impression I get.

Dr Tom Catchpole: I am not sure that is the full picture. It was not clear how the policy was going to work. One of the things that slowed progress, which was probably the first step, was the fact that it took 12 months to interpret the policy—what it meant and how it could be put into practice. That is an important step that has contributed to the situation.

The Duke of Montrose: I gather that Norway has had a total landing obligation for years. Is there any way that we should have been implementing some of those things?

Hazel Curtis: Should is an interesting word.

The Duke of Montrose: Does Norway have a different quota system?

Hazel Curtis: The landing obligation in Norway was implemented in stages over a period of about 20 years. The Norwegians have not gone for a very strict or absolute guarantee that nobody is discarding; they have not gone for CCTV on board every vessel. I understand that in order to make sure that total removals and total fishing mortality are maintained at appropriate levels, despite some expected discarding, Norway has not allocated now to be caught all the fish that used to be discarded. It has taken that step to try to keep fishing mortality within the realms needed to protect the stock size.

Q9 **Lord Selkirk of Douglas:** The questions I am about to ask have already been answered in large measure, but for the sake of clarity I will ask them in case there is anything you want to add. What does the research tell us about the most effective mechanisms for monitoring and enforcing the landing obligation? Is there anything we can learn from other countries—Norway has been mentioned—about how to monitor and enforce effectively compliance of the landing obligation?

Dr Tom Catchpole: A lot of work has been done in the UK and other parts of the EU, much of which has focused on new electronic monitoring technologies. Such systems are now readily available; they have integrated sensors that determine where the vessel is, how fast it is moving and when its winches are operating so that you can assess when it is actually going through the fishing operation, as well as having a link to a series of CCTV cameras so that you can collect images. Basically, you can replay the entire fishing trip and generate information from that.

That technology is widely used in many other parts of the world. It is very well established and is generally considered to be probably the most efficient and effective way of monitoring catches at sea, which is why it has been used in a lot of trials and schemes run in the UK and other places. It is fairly well established, but the challenge is not technological. The challenge is the one we have been talking about; it is linked to choke species, the risks to businesses and resistance from industry in some cases where people feel that they are under additional scrutiny. That is the area where improvement is required to try to bring the industry along, to establish what it is about the technology that would benefit the

industry and how the process could work. Effectively, we are all trying to get to the same place; we want healthy fish stocks, good fishing opportunities, good data and good advice. It is the framework within which the technology is applied that needs work rather than the technology itself.

Lord Rooker: Do you both expect to retain your membership of the European Commission's Scientific, Technical and Economic Committee for Fisheries?

Hazel Curtis: I can easily answer that one. I have not applied again this year.

Dr Tom Catchpole: I have applied and I will find out early next year. There is nothing in the regulations to suggest that you have to be a member of the EU to be on the committee; you just need expertise in European fisheries. What I know this year will be very similar to what I know next year, so maybe I will be invited along again, but the Committee might have a different emphasis, so my skills may not be so relevant.

Lord Rooker: How long have you served on the Committee?

Dr Tom Catchpole: I have done one term of three years.

Lord Rooker: You have done it for a long time, Hazel.

Hazel Curtis: I have done it since 2007.

Lord Selkirk of Douglas: I asked a question about whether we can learn about compliance and monitoring from other countries.

Hazel Curtis: In parts of the USA, where there are observers on board boats, some of their choke situations are completely unresolved and completely problematic. In Norway, which we might call more pragmatic, the overall situation is managed; stocks are not horrendously overexploited and the fleet is still operating.

Viscount Ullswater: Can you give us any indication of what percentage of the catch under the total landing obligation, when it comes in, will be valueless, or of minute value? Are there sufficient ways of disposing of it on the quayside? There will be a new situation from 1 January, and I would be interested to know whether you have come up with any figures from your modelling. Is it 5%, 50% or more than that?

Hazel Curtis: The answer depends entirely on the level of compliance. The evidence to date suggests that landings of smaller fish have been extremely low. Smaller fish that cannot be sold for direct human consumption would be of lower value, but perhaps not zero value. It will not be the majority of the catch; we have not modelled it too directly.

Dr Tom Catchpole: We were asked that precise question by the European Parliament, and I provided some documents that you might

find useful in answering that. There were between 10,000 tonnes and 20,000 tonnes, or something in that region, of fish coming in. That is the third challenge. The challenges are choke species, monitoring and the practical handling of the fish. It is clear that there will be challenges on vessels handling and storing the fish, and there will be challenges at the ports. The infrastructure is not there to deal with that material, but there are outlets. It is possible to make money from the material, but much less than putting the fish into the human consumption market.

Viscount Ullswater: Are handling facilities in place?

Dr Tom Catchpole: They are not in place. The infrastructure to deal with undersize fish is very limited. For example, when you are working in very remote ports, it is quite difficult to see how you can bring all the material together and have sufficient critical mass for somebody to be interested in it.

The Chairman: Hazel, it has previously been said to us that one of the drivers of enforcement might be down the supply chain, where retailers, restaurants or people with reputations want to make sure that their fish has been caught in the right way by people using the right methods and not discarding. Is there any truth in that? Is there any likelihood that that pressure might help or change things?

Hazel Curtis: From the relationships we have throughout the supply chain, there is some indication that retailers would have a concern about that and would want assurances of legal fishing, but it will not be universal. It depends on what assurances they will accept, and whether there is any assurance, other than whether they got caught.

The Chairman: Thank you very much. Thank you both very much indeed for going through that with us. We are greatly enlightened, and hopefully strengthened, for our future sessions with witnesses. This part of the session is at an end.