



## The Science of Managing UK Fisheries

– closed POST breakfast event

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**Wednesday 21<sup>st</sup> February 2018, 08.30-10.00, Room O, Portcullis House**

POST held this event for parliamentarians to discuss with academia, industry and the third sector the science used in fisheries management and the way fisheries are currently managed in the UK. Focus was also given to discussing challenges and opportunities for future UK fisheries management in the context of EU withdrawal and longer term environmental Government commitments. The event was chaired by Holly Lynch MP, Shadow Minister for Environment, Food and Rural Affairs (Flooding and Coastal Communities). Attendees heard briefly from eight speakers during general discussion of the issues:

- **Professor Richard Barnes, Professor of International Law, University of Hull**
- **Professor Jeremy Phillipson, Professor of Rural Development, Newcastle University**
- **Dr Bryce Stewart, Marine Ecologist, University of York**
- **Dr Abigail McQuatters-Gollop, Marine Biologist, Plymouth University**
- **Dr Carl O'Brien CBE, Defra Chief Fisheries Adviser, Centre for Environment, Fisheries and Aquaculture Science**
- **Erin Priddle, UK Fisheries Manager, Environmental Defense Fund**
- **Bertie Armstrong, Chief Executive, Scottish Fishermen's Federation**
- **Aaron Brown, Fishing For Leave**

### Breakfast Briefing Summary

**Holly Lynch MP** opened the meeting and stated the focus of the event on UK fisheries and their management.

- **Dr Bryce Stewart** highlighted two key aspects for consideration moving forwards for UK fisheries management. The first related to inshore fisheries. The UK fishing fleet is dominated overall (in terms of numbers) by small boats that fish inshore. These boats generally have a lower environmental impact than other vessels and have close connections to coastal communities. Many of these inshore fishing boats target non-quota species and specialise in shellfish but struggle financially compared to other offshore fleets. They should be considered as a priority sector moving forwards. There is also relatively poor knowledge of the status of inshore fish stocks and therefore considerable scope for improved science and management around inshore fisheries. The second aspect highlighted was the Ecosystem Approach to fisheries management, which is mentioned within the POSTnote and the UK Government's 25 Year Plan. However, there is still uncertainty about how to implement this; the approach isn't just about considering priority species or setting up marine protected areas – it also needs to consider integrated management across other sectors that affect marine food webs, species interactions and ecosystem function to ensure ecosystems are resilient to future pressures, such as climate change. He reminded everyone that the land and sea are interconnected, using plastics as an example. Seagrass beds, habitats that act as important nursery grounds for many commercial species, can also be affected by land-based pollution. There may be a need to consider joining

up management approaches for land and sea to better account for these issues, using natural capital as a basis for decisions.

- **Erin Priddle** focussed on climate change and its impacts on fisheries and management. As a result of climate change, stocks are shifting rapidly – an ICES report indicated that 16 of 23 key commercial stocks are shifting beyond traditional management areas, and 8 of these are moving out of management areas altogether. When this change is overlaid on an already dynamic system with a rigid management structure, difficulties can arise. Erin highlighted that the UK now has a window of opportunity to look at the governance of fisheries and analyse evidence of what has worked in the past and what needs to change. The current management framework has arguably not worked well, including the Common Fisheries Policy and the concept of relative stability, based on historic catch allocations and patterns, and cannot accommodate stocks rapidly changing and shifting. The UK should consider having a more flexible and responsive system in the future and how international negotiations and interactions can take place that account for these changing resources. She highlighted that setting of unilateral Total Allowable Catches in different Coastal State waters is not desirable and pressures on fisheries such as climate change should be considered in future negotiations. Erin concluded by saying that despite the challenges that face the UK, there are tools and best practices that are being used by other Coastal States and this is an opportunity to come together and cooperate on some of these issues. It's important that decisions are underpinned by science, and that science is responsive and dynamic to help effectively inform fisheries management. Managing fisheries with scientists, industry and government, in partnership and recognising that the marine environment is dynamic and always changing will be key components of future fisheries policy.
- **Dr Abigail McQuatters-Gollop** discussed the context of fisheries within the wider marine environment, highlighting that they are an integral part of the marine system and shouldn't be considered in isolation. Fish and fisheries are connected to the rest of the marine food web, which extends from plankton to coral reefs, with an estimated 8,500 marine species within UK waters. The way that fisheries are managed affects the rest of the marine environment, but direct fishing impacts on the ecosystem will also lead to effects on fisheries. For example, the selective pressure of fishing has led to lengths at which haddock, whiting and cod mature getting shorter and at an earlier age, but these smaller fish are less fecund than large fish and thus affect the productivity of fisheries. The Ecosystem Approach aims to manage the marine environment holistically and consider wider marine biodiversity. For example, sea grass habitats and kelp forests can be damaged by pollution from land or from anchoring from boats or fishing gears, so an integrative approach is needed to manage the whole system. The UK funds cutting edge fisheries and wider marine environment research that is uncovering more of these connections between fisheries and the wider marine environment. Monitoring of the environment, which the UK does to a high standard at the moment, is critical to understanding how the marine environment is changing in response to pressures such as climate change and ocean acidification. These can impact fisheries by changing the habitats that fished species depend upon during different stages of their lifecycles. Understanding how parts of the marine food web are affected by climate change can inform adaptive management to address the challenges created. Abigail suggested that Brexit provides an opportunity to integrate fisheries and marine management and build upon what successes there have been in EU policy, such as the Marine Strategy Framework Directive. Productive fisheries and a healthy marine ecosystem are not mutually exclusive and are intrinsically linked; if the rest of the marine ecosystem is healthy it will have beneficial effects on fisheries.
- **Dr Carl O'Brien CBE** reminded attendees that while science advice and assessments can be used to inform ministers, ultimately fisheries negotiations are political and have to consider other factors aside from biology, such as social and economic aspects of local coastal communities. Fisheries management is an internationally agreed evidence-based process that aims to avoid differences in opinion arising between national science evidence bases that may affect political

negotiations. The International Council for the Exploration of the Sea (ICES) provides advice to clients, such as the European Union and North East Atlantic Fisheries Commission (NEAFC) and others, to try to avoid such conflicts. The UK has been a member of ICES since it was established, and there is no foreseeable reason as to why we would want to leave ICES. Norway and Iceland request ICES for their advice and their national science feeds into this. Fisheries are political, and negotiations are often to do with access arrangements; in future these may be based on zonal attachment, derived from the spatial distribution of stocks over time and various life-history stages. The distribution of fishing quota based upon zonal attachment is likely to be different from those based on relative stability. Relative stability based on historic catch levels is the way the European Union has chosen to allocate fishing opportunities under the CFP. Once the UK has left the EU, those historic catch records may no longer be appropriate and zonal attachment may be the approach adopted, although it isn't a panacea to solve all negotiating and access problems. NEAFC have struggled with zonal attachment for some stocks including mackerel, blue whiting and Atlanto-Scandian herring, with major disagreement between nations over mackerel. This has led to some nations unilaterally setting their own quotas. There are knowledge gaps in fisheries science and management, including an understanding of how much fish is actually being removed from the sea through catches, although landings and discard estimates are available. This should be partly being addressed through the Landing Obligation that will be fully implemented by 2019 and after EU withdrawal the UK is likely to continue to have some form of discard ban and hence, more reliable catch data. Regarding the fisheries objective of Maximum Sustainable Yield (MSY), mixed fisheries can use approaches based on ranges around MSY, as has been piloted in the south west by the UK and presented to the EU at December Councils. This can account for uncertainty regarding MSY and can in some cases lead to exploitation levels occurring at the lower Maximum Economic Yield levels as the objective is managing and balancing outcomes for fisheries rather than managing single stocks. There is an opportunity for the UK to become a recognised leader in marine issues, covering both the marine environment and social and economic aspects, which Defra is now working towards through some strategic projects and initiatives.

- **Prof Richard Barnes** began with an aside on the funding for future fisheries science and management. One option is for investment to come from outside of the fishing industry, but this has to be considered alongside other sectors and industries and fishing's importance compared to these across the economy as a whole. Another option is to look at investments in terms of cost recovery within the industry itself; for example, through rents and access charges which help to generate money from the industry, but fishing isn't always necessarily a lucrative or profitable enterprise. If this option was adopted, the industry would need to become more efficient, raising questions regarding the type and scale of fishing enterprises and if consolidation was needed. Impacts on the industry would need to be carefully considered and understood. He then set out three key aspects mentioned within the POSTnote that deserved greater emphasis. Firstly, fisheries management is about managing people not fish, with consideration of individuals within the fishing community and understanding the kinds of incentives that push them to sea, encourage them to catch and engage in fishing in different ways. Failing to understand these motivations results in management that doesn't work effectively, if at all. Many of the problems with fisheries management in the past has been a result of not having the appropriate incentives in place, leading to compliance problems and illegal practices. Incentives can include a wide range of mechanisms including command and control regulation, but also property rights and market-based mechanisms. Second, fisheries are a common pool resource and having the appropriate incentives in place is key if all are to comply with regulations and all are to benefit. Fisheries can be expensive and difficult to monitor and manage, but without sufficient monitoring and enforcement mechanisms then there is always the possibility of non-compliance – this is human nature. Third, cooperation in fisheries management is also needed, to achieve agreements, to determine how to utilise resources

between different users and to secure compliance. Agreement is necessary to maintain sustainable management of a common pool resource. Cooperation in fisheries is not only required at the scale of Coastal States; it is required across the industry and sectors, between fishermen, and between fisheries and non-fishing sectors such as recreational fishing and environmental groups. As a shared and public resource, management must consider and have input from each of those sectors.

- **Prof Jeremy Phillipson** focussed on wider fisheries governance issues and the social and economic value of fisheries and related sectors. EU withdrawal provides the opportunity to have a more integrated and flexible governance structure within the UK compared to the rigidity of the CFP. The question of who will be involved in developing and implementing UK future fisheries policy raises concerns regarding the allocation of responsibilities between the UK, devolved administrations and local institutions and the challenge of devising a coherent approach and vision. There is an opportunity to build upon examples of current management arrangements, such as the Inshore Fisheries Conservation Authorities in England, Producer Organisations, and Fisheries Local Action Groups, which have provided important inputs to UK fisheries approaches. Development of a coherent and purposeful relationship with European neighbours after EU withdrawal will also be important, as responsibilities for fisheries do not stop at the limits of the UK EEZ. Sustainable management of shared seas requires shared intelligence, mutual understanding and collaborative action, and a shared vision compatible with different management regimes and strategies will be needed. There is a requirement for a strong sense of mutual trust and interest across states, if new cooperative structures and unified ways of working are needed. If mutually acceptable outcomes can't be agreed, provoking a dichotomy between 'winners' and 'losers', there will be a high price paid by the fishing industry both in the EU and UK. He finished by asking whether there is a need for a future vision and management plan for the entirety of the fish production, processing and distribution chain. Fisheries management often tends to be framed with respect to resources, ecosystems, allocations and access. However, it could be argued that the downstream links in the fish chain, which generates a substantial share of employment and value, aren't always considered. This can be seen in the disconnection between the debates over rebalancing fishing opportunities and maintaining frictionless trade for fish and fish products. Fish processors rely upon competitive and equivalent access to European markets, labour and raw materials, and that certain segments of the catching sector rely upon high value EU markets for their prime catches. There is a need to develop a balanced picture of the likely impacts of Brexit across the catching and downstream sectors throughout effected localities and regions.
- **Bertie Armstrong** stated the need for rebalancing fishing opportunities for the UK fleet after EU withdrawal. The UK only keeps 40% of species that is entitled to, because of historical agreements and decisions (compared to higher shares from countries such as Norway and Iceland). The UK distant fleet used to operate from places such as Humberside, Aberdeen and Fleetwood, going long distances to fish off the Grand Banks and around areas such as Iceland, Greenland and the Barents Sea. This historically is where the bulk of UK fishing effort was when relative stability was developed, rather than UK offshore waters. Combined with a change in law that granted common access to the UK Exclusive Economic Zone by Member states (once the UK was part of the EU), this resulted in a significant loss of fishing opportunities for the UK. Zonal attachment could be used to rebalance the opportunities the UK is entitled to in future negotiations. He expressed that all the aspirations that we have for better science, improved compliance, a more productive industry, for a supply chain that is better supplied, will come if the UK - in a sensible way - move towards the concept of zonal attachment. Upon EU withdrawal he highlighted the importance of acknowledging the UK's Coastal State status and not trading away fishing opportunities in negotiations for the benefit of other economic sectors. Using zonal attachment would allow a rebalancing of fishing opportunities as most species sought for the UK market occur within UK waters. During negotiations it is important for decision makers to

consider whether outcomes were fair, right and reasonable, given the sovereign rights that the UK will have as a Coastal State and the allocations the UK is entitled to according to zonal attachment.

- **Aaron Brown** highlighted the dependence of fishing communities on fishing, which are often in isolated rural locations and their economic dependence on successful outcomes from EU withdrawal negotiations. Following EU withdrawal, access to resources that are rightfully the UK's should be regained and control of them taken back – if this doesn't happen he stated this would be a betrayal to the UK fishing industry and fleet. The UK should be the one to determine the level of access and the allocations to fishing resources, and he posed the question of whether the UK was willing to manage fish for the benefit of the UK or not. Aaron then moved on to discuss the failings of the CFP and current management systems that have not, in his opinion, benefited fish stocks or fishing communities. While agreeing with the need for integrated and holistic approaches to marine and fisheries management, he highlighted two key pre-requisites. The first was the need for more data, and the other on having a system that supported the generation of this data. A lot of fisheries science works on producing estimates with small amounts of data to inform management, which then fails to meet the needs of fishermen. He stated that fish stocks are being fished beyond recommended levels because of high levels of discarding leading to a quota system which is ineffective, as Total Allowable Catches only reflect landings and not the actual levels being caught. This has led to fishing beyond sustainable levels and data that is not reflective of the true status of stocks. Aaron suggested that instead of the current system, there should be a new flexible system developed that enables all catches to be landed in return for limited days at sea, and providing more realistic data for management.

## Discussion

- The input of the fishing community is critical in the management of fisheries – they deserve to know what is going on and how to grow the industry in a sustainable way. Fishing organisations have immense knowledge and resources to help direct discussions.
- The current focus on Maximum Sustainable Yield in fisheries is flawed and there are other ways to manage fisheries. Uncertainty regarding MSY may jeopardise fish stocks if the estimates are wrong and lead to stocks being depleted. Maximum Economic Yield (MEY), which is set lower at MSY with lower exploitation rates, is an alternative to consider. This is used in Australian fisheries. Additionally, Ecosystem Based Management can help in improving in determining what sustainable yields should be, for example, by informing reference points. There is increasing recognition that traditional management methods are perhaps not as fit for purpose as they once were, given more is known about factors such as climate change and species interactions, with fisheries management slowly moving towards more holistic approaches.
- Joint land and sea management would need to balance the needs of local and regional communities and fleets. More targeted action may be needed, such as approaches in the Water Strategy Directive or Marine Strategy Framework Directive.
- Flexibility in management is important, and this may be informed through using local knowledge. Inshore Fisheries and Conservation Authorities in England provide good examples of this in some of their management practices. Technology also has a role in capturing local knowledge e.g. through catch apps, which can capture data and provide it for scientific assessments.
- Implementation of the Ecosystem Approach is still work in progress for marine and fisheries management. However, the EU has been a world leader in developing the approach, for example through the MSFD. Going forward for the UK, there would be benefits of undertaking integrated management. In doing so opportunities may emerge; for example, wind farms can protect some fish species from certain fishing practices. However, the Ecosystem Approach would need to be developed at appropriate scales to account for these multiple uses.

- Further discussion centred upon mixed fisheries and the scientific advice and approaches used for these. In recent EU Council meetings, mixed fisheries models developed by Cefas that have gone through the ICES process have been presented. These models try to develop ranges and balance fishing opportunities for some demersal species such as whiting, but were not approved at Council level as they difficult to reconcile with EU legislation. Mixed fisheries continue to be an area that is being researched to better account for species interactions and move from single stock management. Following withdrawal, the UK could be more creative in the ways it deals with choke species and discarding of species and develop systems that can respond quicker to how the fishery is 'on the ground'.
- Differences in fishing methods and their effects on the ecosystem were discussed alongside consideration of which methods should or should not be allowed in UK waters in the future. Pulse trawling was discussed, the ongoing UK projects seeking to determine the effects of this on marine species, the effects of the high voltages used, the trade-off between increased fuel efficiency and impacts on marine biodiversity and the use of a European Commission 'dispensation' from the CFP to allow more than a 100 trawlers to fish in this way, so long as they did not catch above a certain level of quota.
- Enforcement of fisheries was discussed, and the science used to inform this. Involving industry and stakeholders in the design of enforcement regimes and monitoring was considered to be critical in building compliance, as ownership of them increases the inclination to abide by rules and often to defend them too. Measures such as placing Vessel Monitoring Systems on boats over 12m vessels are increasingly helping to inform enforcement approaches. Wider compliance issues and the possibility of Illegal, Unreported and Unregulated fishing were discussed in the context of EU withdrawal, with debate over the extent to which cooperation was needed in development and implementation of enforcement controls. International obligations require cooperation, and agreements will need to be reached with other nations in order to determine some enforcement regulations. However, others suggested given the EU has already made significant steps to tackle IUU fishing and this is unlikely to be an issue because all member states are working towards eliminating this.
- There was also discussion regarding the processing sector and the need for further attention, particularly regarding academic research on this part of the supply chain and its dependencies. It was noted there are relatively few researchers work specifically upon fish processing and production.
- How science and fisheries management is funded in the future is a key question. There are other examples of Coastal States requiring the fishing industry to pay for some of this, and so the UK may want to consider this going forward.
- The importance of both the EU and international markets for the industry was discussed. Inshore fisheries are very dependent upon European markets, particularly regarding shellfish. The industry is complex and diverse and management needs to be sophisticated enough to account for this complexity and the dependencies of coastal communities. Some suggested market concerns would be reduced if the UK was able to gain more fish resources in future negotiations and that other international markets would be willing to trade with the UK.
- Some discussed the quota system within the UK and the issues that have resulted because of it becoming a 'de facto Individual Transferable Quota System'. This has led to issues such as 'slipper skippers' and unfairness between sectors over the allocations they are given.
- It was the UK Government's historic mistake to focus on long-distance fleets and not UK offshore waters, ignoring the trend of other Coastal States pushing for more control of fishing practices in their offshore waters that ultimately led to the failure to secure more quota under the CFP. As such the UK positioned itself against the way the general allocation of fishing access was going to be governed by international law. It was argued that this highlights that a Coastal State has to be aware of and sensitive to what other states are doing and how it positions itself compared to others if it is to be successful in international negotiations.

- Processing supports thousands of jobs and has large economic importance, particularly in areas such as Grimsby. It is a diverse sector, not just supporting those working within the plants themselves, but also those transporting, delivering, trading and selling fish and fish products. Consumers are dependent upon this sector as well, relying upon fish and chips shops, restaurants and supermarkets, all of which will have needed their fish to have been processed in some way. It was suggested that a lot of current focus is upon inshore fisheries, but certain processing sectors would also like to see a return of long distance, pelagic fleets to supply them. Production may be able to move to other areas to suit the needs of the market that they were selling to although the full implications of this are yet unknown. Future fisheries discussions can't just focus upon resources and the catching sector – they must also consider the processing sector's pragmatic, current needs as well as those in the future. Consideration of the wider domestic consumers, who ultimately drive these markets, is also needed.

**Holly Lynch MP** then drew the discussion to a close, thanking all for their contributions and highlighting the importance of discussing this topic at such a crucial time. She also thanked the British Ecological Society for sponsoring the event.