Governing UK fisheries after Brexit – Lessons from Iceland, Norway and the Faroe Islands

UNIVERSITY OF THE WEST of SCOTLAND
UWS

The UK in a Changing Europe

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Foreword

Brexit creates opportunities for the British Government and the devolved institutions to develop their own approaches to fisheries management. By the same token, it also presents challenges, including the need to respect the devolution settlement, to develop governance structures for a complicated sector that involves a number of stakeholder groups, and to ground the principles determining policy in clear legislation.

In order to carry out the task of devising and implementing a new approach, what is needed is evidence. This report provides such evidence. Based on detailed comparative research, drawing on the experience of other coastal nations, it sets out a clear set of detailed recommendations for Government.

In so doing, it represents a model of what we at the UK in a Changing Europe aspire to do. We were set up by the Economic and Social Research Council to let people know what the research says. Whether that someone is government, or trade associations, or the woman in the street, that is what we have tried to do since our launch in 2015.

As Brexit approaches, the need for evidence becomes ever more pressing. I'd urge all those interested or involved in the fisheries sector to consider carefully the findings presented here. And, of course, I'd equally urge all those interested or involved in any aspect of Brexit to keep up with our work, which covers all conceivable aspects of the Brexit process (www.ukandeu.ac.uk).

It remains for me simply to thank Craig, Christopher, Arno and John for the work they have put into this report. Using social science to inform debates over policy is what we at the UK in a Changing Europe are all about, and this is a fascinating contribution to the fisheries debate.

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Director, the UK in a Changing Europe

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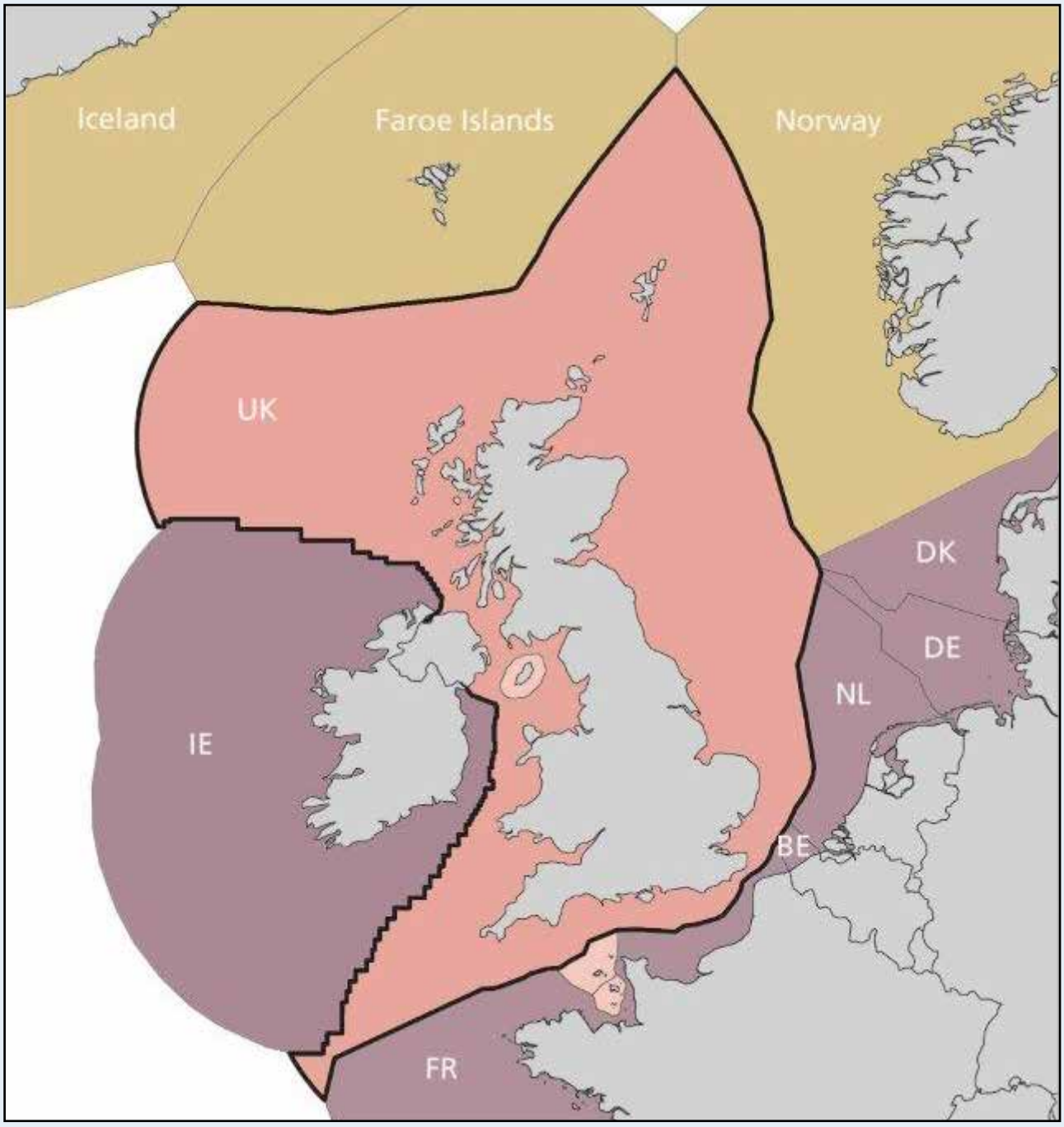

'Source: House of Lords European Union Committee, Brexit: Fisheries, 17/12/16'.

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Project background: UK Fisheries Policy Post-Brexit: Multi-level Challenges and Opportunities

This project examines how independent coastal states outside the EU (Iceland, Norway and the Faroe Islands) govern and manage their offshore fisheries in order to help inform policy-makers in the UK of the opportunities and challenges of Brexit. The research also focuses on how these states and territories engage with European partners to effectively manage fisheries and further their interests. The recalibration of UK fisheries policy is also a potential source of tension between the constituent nations of the UK, with devolved institutions making a case that they ought to have a greater say on fisheries governance. Against this backdrop, the project also examines how the repatriation of fisheries policy impacts on the internal constitutional structures of the UK.

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Executive summary

Introduction

- Leaving the Common Fisheries Policy (CFP) means that the UK will need to put in place governance processes and institutional structures to replace those at the EU level.
- This presents opportunities for the UK as it will have far more scope to shape fisheries policy to suit its own needs given that it will become an independent coastal state.
- However, this will need to be done in a way that:
    - Balances the interests of a range of industry and non-industry stakeholders
    - Respects the competencies of the devolved administrations
    - Respects the UK's obligations as a signatory of the United Nations Convention on the Law of the Sea.
- Despite Brexit being a unique and extremely complicated process that has no precedent, the UK can draw upon the experiences of nearby independent coastal states (Iceland, Norway and the Faroe Islands) when it comes to fisheries policy.

Case Studies

Iceland

- Iceland governs its fisheries using a three-pillared institutional structure (government ministry, marine science institute, fisheries directorate) which ensures that scientific advice is adhered to as far as is possible and is free from political interference.
- Iceland uses an Individual Transferable Quota (ITQ) system which has a transparent, real-time quota monitoring system, run by the directorate, that provides up-to-date information on landings which is self-policing and can be closely monitored by scientists.
- There is a positive relationship between government and industry, with industry voices included in decision-making processes and external relations with other coastal states.
- Although the ITQ system has helped improve the state of Icelandic fish stocks, it has had a discernible negative social impact in smaller and more remote fishing communities.

Norway

- Norway's fisheries governance structures are similar to Iceland's, with a ministry taking political responsibility, an Institute for Marine Research providing scientific advice and a Directorate of Fisheries undertaking executive functions and day-to-day administration.
- It has developed a complex fisheries management system, encompassing strict ownership and licensing rules, Total Allowable Catches (TACs) and quotas, and regulatory measures such as a discard ban and the closure of fishing grounds.
- The key principles guiding Norwegian fisheries management are enshrined in legislation and policy-making is characterised by transparency, cooperation and consensus between the government, industry, scientific community and other stakeholders.
- Against the benchmarks of sustainability and economic profitability, Norway's approach to fisheries management has been a success. This took place at a time when the Norwegian economy was in strong position, and so mitigated against the impact on local fishing communities.

Faroe Islands

- Despite not being a sovereign state, the Faroe Islands is an independent coastal state and thus has full autonomy over their fisheries policy.
- The effort-based system for demersal fisheries, which was popular with the fishing industry, was replaced by a Total Allowable Catch (TAC) system in December 2017 because of concerns over sustainability.
- The effort-based system led to politicisation of fishing policy and to marginalisation of scientific advice in the process. In contrast, the reformed policy aims to give primacy to scientific advice and to make quota-setting a more technical issue.

- The reformed policy also aims to create a more sustainable and inclusive fishing industry in the Faroe Islands with strict foreign ownership rules and development policies for economically deprived areas.

Overview of policy recommendations

- Some key principles regarding the management of fisheries ought to be enshrined in law which include:
  - Incorporating fisheries management into a wider environmental strategy.
  - Ensuring the take up of quotas in order to minimise speculative buying or holding.
  - Ensuring that there is a minimum level of adherence to these principles across the devolved and UK jurisdictions.
  - The creation of a fisheries common framework between the UK and devolved governments which ensures these principles endure.
- An effective and enduring institutional structure should be put in place which contains the government ministry/department, scientific institute and a directorate which conducts and oversees the day-to-day management of UK fisheries. Any such structure would need to appreciate the contours of devolution in the UK in terms of where these structures would be best located.
- The independence of scientific advice should be enshrined in law to ensure that future sustainability of fish stocks is a key consideration in the decision-making process.
- Decision-making on day-to-day management, future reforms and negotiations with other coastal states should include industry and other relevant stakeholders in both a consultative and advisory role in order to ensure transparency and the fostering of a culture of trust, cooperation and consensus.
- Fisheries policy in a post-Brexit UK should ensure that any economic benefits accruing from leaving the CFP should also benefit fishing dependent communities. A detailed assessment of how these communities would be affected by Brexit and proposed changes to fisheries management ahead of the UK becoming an independent coastal state ought to be undertaken to initiate effective policy responses.

Introduction

Brexit has significant implications for the future of fisheries management. In particular, at the point of European Union (EU) withdrawal, the United Kingdom (UK) will need to have in place new governance processes and institutional structures to replace those currently operating at the EU level.

This presents the UK and its devolved nations with both opportunities and challenges. On the one hand, it allows the UK to develop its own approach to fisheries management according to its own priorities. This will need to respect the way the British constitution is structured, i.e. the competences of the devolved administrations will need to be appreciated. For the devolved administrations this means being able to develop approaches specific to their own fishing industries and which account for the fundamental differences in the nature of fisheries across the UK. The UK Government will also have to carry out this role for England.

This report looks to three non-EU countries and territories (Iceland, Norway and the Faroe Islands) to draw lessons about their approaches to governing fisheries management. Our focus here is not on the specific fisheries management policies which should be adopted by the UK and its devolved nations, but on how fisheries should be governed and how decision-making processes should be institutionalised.

Background: Brexit and fisheries policy

The principle of a common European fisheries policy was included within the Treaty of Rome (1957) with a separate CFP taking shape from 1970 onwards. This was deemed particularly important given the accession of the UK, Ireland and Denmark to the European Community in 1973. According to the European Commission:

> The CFP is a set of rules for managing European fishing fleets and for conserving fish stocks. Designed to manage a common resource, it gives all European fishing fleets equal access to EU waters and fishing grounds and allows fishermen to compete fairly.[1]

Several studies have highlighted problems with the CFP. As well as being criticised for being too 'top-down' in the way decisions over fisheries are made,[2] it has also been criticised for not promoting sustainability and actually leading to the overfishing of some stocks.[3] This is partly because of the nature of political bargaining among national ministers at the EU level[4], although this has been less pronounced in recent years. The catching sector in the UK has been particularly critical of the CFP because it perceives that vessels from other EU countries are granted too much access to UK waters[5] and that it essentially prevents the UK's fishing industry from being more successful.[6]

Despite some perceived advantages of leaving the CFP, the UK's withdrawal from the EU presents significant challenges for the future governance of fisheries. Brexit means that the UK and its devolved administrations must develop policy-making and governance capacities in an area where they have hitherto had limited discretion. While much of the day-to-day administration of fisheries management is done at the UK and devolved levels, substantive policy-making in fisheries policy is done at the EU level. Withdrawal from the EU and the CFP means the UK will become an independent coastal state with decision-making and governance responsibility over fisheries policy returning to the UK, alongside full control over its Exclusive Economic Zone (EEZ). This will also have implications for the UK's future access points to EU-level decision-making processes in the aftermath of Brexit.

Governing fisheries post-Brexit will be a balancing act: the interests of the catching sector, which overwhelmingly backed Brexit, must be balanced alongside the need to ensure the sustainability of

fisheries, while also meeting obligations under the UN Convention on the Law of the Sea (UNCLOS) and managing relationships with neighbouring coastal states, including the EU. Under UNCLOS the UK will have to ensure their approach to fisheries management promotes sustainability and avoids over-exploitation, cooperate with neighbouring coastal states on the management of fish stocks which straddle their EEZs, and grant access to other coastal states where there is a surplus of fish stocks. The interests of the processing sector will also need to be taken into account, particularly with regards to access to European markets after Brexit.

Furthermore, the UK government will have to carefully manage its relationships with the devolved administrations in Northern Ireland, Scotland and Wales, who have competence over fisheries policy but not over key related areas such as international engagement and international trade. The nature of the fishing industries across the UK also significantly varies (see Table 1), placing a limit on a 'one size fits all' approach.

Table 1: Comparing the fishing industry across the UK's nations

	England	Northern Ireland	Scotland	Wales
Number of vessels 10m and under	2,569	202	1,456	419
Number of vessels over 10m	529	149	575	32
Total fleet capacity (tonnes)	58,813	13,916	105,395	5,186
Number of fishermen	5,306	875	4,823	753
Total landings by nationality of vessel (thousand tonnes)	201.6	29.4	453.3	9.9
Total value of landings by nationality of vessel (£ million)	304.7	41.6	556.9	21.7

Source: Marine Management Organisation (2017)

There have been calls for a 'common framework' for fisheries to be adopted UK-wide to limit the potential for four divergent fisheries policies developing. However, the discourse surrounding these common frameworks has been politically contentious, with the Scottish and Welsh governments unsatisfied with the UK government's position regarding the process by which powers are 'repatriated' from the EU. Regardless of the political situation surrounding this process, it is important for both the UK and the devolved governments to find stable common frameworks across a range of policy areas, including fisheries.

Aside from the clear challenges that Brexit poses, leaving the CFP does leave the UK with something of a blank sheet when it comes to managing its EEZ and its fish stocks. Once the CFP no longer has jurisdiction, the UK and its devolved nations will be able to construct an approach to fisheries management which suits their needs.

Learning lessons from other coastal states

Given the challenge of developing new and improving existing governance capacities, looking to Iceland, Norway and the Faroe Islands offers potential lessons for the UK. The nature of the fishing industry differs in each country (see Table 2), but all three share key common characteristics. They are independent coastal states with EEZs which border the UK's. They all engage with the EU in the management of their fisheries in a way that the UK will have to after the Brexit process is fully completed

Table 2: Iceland, Faroe Islands, Norway and UK fishing industries compared

	Iceland	Faroe Islands	Norway	UK
Total catch (thousand tonnes, 2016)	1,069.9	568	2,065.5	701.1
Number of vessels (2016)	1,647	365	5,946	6,191
Number of fishermen (2016)	C. 6000	1,460	11,249	11,757
Value of fish and seafood as a proportion of exports	22% (2015)	97% (2016)	6.7% (2017)	0.27% (2016)

Source: Fiskeridirecktoratet (2017); HM Revenue and Customs (2018); Marine Management Organisation (2017); Statistics Iceland (2018); Statistik sentralbyrå (2018a, 2018b) Hagstova Føroya (2017); CIA Factbook (2017); FAS 2017.

While these three cases offer potential lessons for the UK, there are limits to simply transferring their models of fisheries governance to the UK. The context in each of these cases is different to the UK. In all three, fisheries plays a much larger role in their respective economies than it does in the UK. In addition, the three case studies do not have to contend with the complications thrown up by devolution in the UK. Nevertheless, these cases offer valuable insights into how fisheries management is institutionalised and how decisions are made, and so offer useful lessons for the UK.

Iceland

A quota system was first introduced in Iceland in 1984 as a response to the collapse in cod stocks that occurred in the early 1980s. Iceland's current ITQ system, introduced in 1991, operates through quota rights to catch and land fish being available to buy, sell and trade in an open marketplace. Within strict rules, which aim to make sure that the allocated quota is indeed extracted, not sold abroad and does not become monopolised by bigger companies, vessels that hold quota are able to utilise the quota market to suit their needs based on previous catches over the past three years. Indeed, vessels are obliged to harvest at least 50% of their allocated quota which helps to discourage speculative quota holding.

Discards are banned by law, and some smaller vessels operate under a 'days-at-sea' system. Closures of particular fishing grounds is also possible if there is a need to protect spawning stocks. Despite ITQ being, on the face of it, a market-driven and thus 'capitalist' system, the fish around Iceland are owned

by the Icelandic nation and are therefore a resource that has to be managed in a way that benefits the country as a whole.

Icelandic fisheries are governed by a three-pillared structure. First, the Ministry of Fisheries and Agriculture within the Ministry of Industry and Innovation is responsible for laws and regulations. Second, the Marine Research Institute (MRI), alongside international advice, is responsible for providing the ministry with scientific advice on the health of fish stocks and recommended TAC and quota levels. Despite being a government institute under the auspices of the ministry, its independence from government is protected by law with government not interfering in its operations and adhering to its advice very closely.

The third and final pillar is the Directorate of Fisheries (Fiskistofa) which is responsible for the day-to-day administration of the fisheries management system. The legal and operational independence of the MRI and the Directorate has meant that fisheries policy has become relatively depoliticised. The Directorate monitors the take-up of quota in real time in conjunction with local authorities and provides up to date information to the MRI. Once analysed by the MRI this information can be used to, for example, close down a particular fishing ground to protect stocks if the fish being caught there are smaller than expected. Importantly, the information that is fed into this system often comes from fishers themselves, illustrating their willingness to cooperate with the system.

The Directorate operates a real-time monitoring system which gathers data, such as the weight of a particular species caught, from inspectors at harbours that are administered by local authorities. This data is then fed into the online system and used to check what quota is left for individual quota holders to catch. This information helps the MRI monitor fish stocks, allows quota holders to sell or trade excess quota, buy or swap quota if they require it, and aids individual quota holders to ensure that fishing operations across the country are 'above board' and that no one is cheating the system. Currently, a smartphone app is being developed so that the system becomes almost completely 'paper free'. This system has helped foster a sense of mutual trust and transparency within the catching sector and between the catching sector, government and other stakeholders.

The relationship between the Icelandic fishing industry and government is mostly positive and there exists a general culture of cooperation between the two. The industry is mostly supportive of the ITQ system and respects the MRI's scientific advice. As well as seeing government as a partner in the management and sustainability of Iceland's fisheries, industry representatives are often closely engaged in external relations. Overall, the fishing industry feels like it has a strong stake in the overall management of Icelandic fisheries and future policy development. Indeed, the industry crucial in this regard given its expertise.

Although Iceland's ITQ system has helped to considerably improve the health of fish stocks around Iceland, the system has had negative social consequences. The 1991 reforms aimed to limit the power of larger companies when it came to acquiring quota but the system still favours larger enterprises. This has led to the overall decline of remote fishing towns and villages. The shift to an ITQ system has consolidated quota share in fewer hands and in larger companies and has resulted in a reduction in the size of Iceland's fishing fleet as a whole. Smaller, local firms have tended to amalgamate in order to improve efficiency or have been bought over by larger companies.[7] The activity of these larger companies tends to be concentrated away from more remote towns and villages. Although the government has taken measures to encourage other industries to counterbalance the decline of the fishing industry in these areas, such as tourism and fish processing, the impact is a recognised negative side-effect of the ITQ system..

Norway

Norway has developed a complex fisheries management regime, characterised by three features: licensing and ownership rules, a system of TACs and quotas assigned to vessels, and a package of regulatory measures.[8] Participation in fisheries is granted through licences which are allocated to both vessels and their owners. To obtain a licence, there is a requirement to be an active fisherman, and licences can only be granted to Norwegian citizens or companies which are at least 60% owned by Norwegian citizens. A licence and vessel ownership grants access to quotas. A key feature here is the use of Individual Vessel Quotas (IVQs). National quotas are first divided by and allocated to different groups of vessels, defined by size and type of fishing gear used. Group quotas are then further allocated to individual vessels, either through an IVQ or a 'maximum quota'. In the case of IVQs, each vessel is assigned a fixed portion of the group quota which is guaranteed. In the case of maximum quotas an upper catch limit is set, but the total of maximum quotas exceeds the total group quota, meaning once the total group quota has been met no more fishing is permitted within that group, even if individual vessels have yet to reach their own maximum limit.

Additionally, several regulatory measures designed to ensure the sustainability of fisheries have been adopted. This includes a discard ban which carries an obligation to land all fish caught. This is supported by other regulatory measures, including the closure of fishing areas and the use of selective gear.[9] Governmental responsibility falls under the Department of Fisheries and Aquaculture within the Ministry of Trade, Industry and Fisheries. Two agencies in particular, the Institute for Marine Research and the Directorate of Fisheries, support the ministry's work. The Institute for Marine Research undertakes scientific research on the welfare of the marine environment and provides scientific advice on fisheries. The Directorate of Fisheries acts as the executive agency for the ministry and has responsibility for much of the day-to-day administration of fisheries policy, both through implementing policy and by undertaking a monitoring and control role. It also provides an advisory function, recommending new fisheries regulations.

Norwegian fisheries management is driven by two fundamental values: sustainability and profitability. These are written into the 2009 Marine Resources Act, which also requires an 'ecosystem approach' to the management of marine resources.[10] To achieve these aims decision-making takes place within an annual 'regulatory chain'. Scientific advice feeds into quota negotiations with neighbouring coastal states. The process then moves to a period of stakeholder engagement in the form of a 'regulatory meeting' bringing together representatives from the fishing industry, local authorities, environmental organisations and other stakeholders. Based on this input, the Directorate of Fisheries makes proposals for quota allocation and regulations, which are then passed to the ministry for a final decision. This is then followed by implementation and a period of monitoring.

The cyclical nature of this process means experiences of implementing the previous year's regulations feed into the next year's decision-making cycle. This ongoing process ensures a constant interaction between the government, industry, the scientific community and other stakeholders such as environmental interests, meaning it is regarded as transparent. This has led to a broad consensus that the current approach to fisheries management works. Notwithstanding occasional disagreements, transparent decision-making processes and active involvement of stakeholders has meant that the government, the fishing industry and the scientific community have developed positive working relationships.

When assessed against the benchmarks of sustainability and profitability, Norway's approach has been successful. The setting of TACs based on scientific advice, coupled with the allocation of quotas and a

range of regulatory measures has meant Norwegian fisheries are broadly sustainable. Strict licensing and ownership rules, together with the abolition of state subsidies for the fishing industry, have reduced the size of the Norwegian fishing fleet. On the one hand this reduced the significance of the fishing industry as the main economic driver in many coastal communities. On the other hand, the reduced fleet has contributed to preventing overfishing while at the same time improving the profitability of the remaining fleet and the industry's long-term economic viability.[11] It is also worth noting that the economic impact of reducing the size of the fishing fleet was mitigated by the fact reduced levels of employment in Norway's fishing industry came at a time of low unemployment in Norway as a whole.[12]

Faroe Islands

The Faroe Islands is an autonomous territory within the Kingdom of Denmark but is an independent coastal state. It has full autonomy over fisheries management as well as independent coastal status which allows it to engage independently in bilateral and multilateral negotiations. With regards to various regional fisheries management organisations, the Faroe Islands operate together with Greenland under the title 'Denmark in respect of the Faroe Islands and Greenland' (DFG). The Faroe Islands also has associated membership of the International Marine Organisation (IMO).

The Ministry of Fisheries is responsible for fisheries management. Scientific support is provided by the Faroe Marine Research Institute (FAMRI). There is cooperation agreement between the Faroes and Denmark in relation to inspection and enforcement tasks, and the Danish Navy regularly carries out inspections in Faroese waters. The Ministry of Foreign Affairs is responsible for the negotiation of trade agreements and fisheries agreements with the EU and other coastal states.

The Faroe Islands has operated various fishing management systems. Pelagic fish have historically been managed using a TAC system for which quotas are agreed internationally. However, somewhat uniquely, demersal fishing has been managed using a Total Allowable Effort (TAE) system. This days-at-sea approach allocates the number of days that individual fishermen have the right to fish. Fishing days transfers are regulated and restriction apply between gear and vessel categories. Additionally, the regulatory regime includes area closures to maintain and protect fish stocks.

This effort-based system enjoys support from industry and the public.[13] One key advantage is that it is considered more appropriate for mixed fisheries as it limits discards. It can also be seen as a self-regulating system: if fish stocks are low there is no economic incentive to engage in fishing activities hence allowing stock to recover. It is also relatively easy to administrate. However, it has been criticised by the scientific community as a free-for-all system with limited restrictions to ensure a sustainable level of fishing.[14]

Until 2017 the governance system of the Faroese fisheries management system centred around determining the number of fishing days to be allocated on an annual basis.[15] One of the key characteristics of this system is that scientific evidence and the fishing industry's views are diametrically opposed.[16] Traditionally, the minister's position has been closer to that of the industry.[17] Another important feature is the lack of environmental interests in the process; environmental NGOs simply do not exist in the Faroe Islands. This absence means that the environmental dimension is not prominent in Faroese fisheries policy and that the Faroe Islands are seen as somewhat as lagging behind Iceland and Norway. This, coupled with a strong industry representation, has meant that the scientific community is often marginalised in decision-making.

In December 2017, the Faroese Parliament passed a bill which instigated a major overhaul of fisheries policy. The reforms are built on three pillars: social, economic and ecological sustainability.[18] There have

been concerns about the lack of public benefit from fisheries. The new legislation extends important earlier innovations such as resource fees which were introduced in 2011, antitrust rules introduced in a previous law in 2007 and an auction system for fishing licences introduced in 2015. These measures aim to move away from privately and concentrated ownership of licenses and towards maximising public benefits. The legislation also introduces development quotas for areas on the Islands that are experiencing higher levels of unemployment and are considered underdeveloped in terms of industry-related activities.

These reforms aim to protect the interest of Faroese fishing industry, with foreign ownership of fishing rights being phased out and a rule stipulating that all fish caught should be landed in the Faroe Islands. Certain elements of the new approach are to be phased in gradually to allow industry to adjust. The new ownership rules have led to considerable criticism, particularly from countries like Iceland and the Netherlands.

Biological sustainability is to be achieved by enhancing the influence of scientific evidence. This means abandoning the effort-based approach in favour of TACs which will be introduced, with a one year delay, in 2019.[19] This will allow for a greater use of scientific evidence in the policy-making process. Additionally the Faroe Islands intend to adopt long-term management strategies for individual fishing stocks, allowing them to move towards maximum sustainable yield (MSY).

The new governance framework aims to depoliticise quota setting. A set formula is agreed on which basis scientific advice is given to the minister. The annual decisions on quotas will no longer require parliamentary approval but will instead be taken by the minister. It is envisaged that the new governance framework will provide more access for the scientific community. The new framework is still evolving but it is expected that there will now be a single board which brings all stakeholders together. It is hoped that this will improve partnership working and trust. Overall, these reforms bring the Faroese system more into line with how Iceland and Norway manage and govern fisheries.

Key lessons and policy recommendations

Our review of how fisheries are governed and how decision-making processes are institutionalised in the three case studies highlights several lessons for the UK which give rise to a series of recommendations organised under the following themes:

- Legislating key principles.
- Establishing effective institutions and governance frameworks.
- Ensuring the independence of scientific advice.
- Stakeholder engagement.
- Ensuring benefits for local communities.

Legislating key principles

There have been widespread calls for the UK to put sustainability at the heart of its post-Brexit fisheries policy.[20] The recently published 25 Year Environment Plan has set out the government's ambition for post-Brexit fisheries policy to be driven by the overarching principle of sustainability. In particular it aims for fishing to MSY and to base decisions on scientific evidence.[21] While a white paper and a Fisheries Bill are expected in Spring 2018, it currently remains unclear how the government intends to formalise this vision.

The Norwegian approach offers a potential model for the UK. Norway's Marine Resources Act sets out that all marine resources, including fisheries, should be used in a sustainable and economically profitable way. To achieve this it mandates that decisions on the use of marine resources should be guided by the precautionary and ecosystem approaches. It also specifies specific fisheries regulations, such as the discard ban.[22] A similar approach to legislating key principles in fisheries management has recently been undertaken in the Faroe Islands. The Faroe Islands' legislation includes a commitment to implementing long term management strategies with an aim to achieve MSY. However, it should be recognised that an agreement to the principle leaves extensive room to maneuver when it comes to actual implementation. The Icelandic approach of ensuring quota is adequately fished to prevent speculative purchasing would also be of benefit to the UK's fishing industry.

These legislative frameworks ensure governments remain committed to the guiding principles of sustainability and economic profitability. They also ensure wider clarity among other stakeholders over the main principles driving fisheries management.

Recommendation 1: ***The key principles guiding fisheries management as set out in the 25 Year Environment Plan should be given statutory weight in the forthcoming fisheries bill.***

Recommendation 2: ***Rules are put in place to ensure quotas are taken up, within sustainable boundaries, in order to prevent speculative buying or holding.***

Recommendation 3: ***Key principles guiding fisheries management should be given similar statutory weight in any fisheries legislation passed by the devolved parliaments and assemblies.***

Recommendation 4: ***That key principles in fisheries management are agreed between the UK government and the devolved administrations and formalised in a common framework.***

Recommendation 5: ***Ensure effective parliamentary scrutiny over post-Brexit fisheries policy so that key principles are carried through in law and in practice.***

Recommendation 6: ***Establish a three-pillared institutional structure, with a governmental ministry / department responsible for accountability and taking political ownership of fisheries decision-making, a marine research institute to feed scientific knowledge into fisheries policy-making, and a directorate / executive agency responsible for day-to-day implementation.***

Recommendation 7: ***Any institutional structures need to account for the UK's devolved settlements and respect the spirit of the common framework agreements.***

Establishing effective institutions and governance frameworks

One of the key challenges facing the UK is ensuring that an appropriate institutional framework to manage and govern fisheries is in place by the time it leaves the CFP. Much of this capacity already exists, as much of the day-to-day administration already takes place at the UK and devolved levels. However institutions will need additional capacity to take on fisheries policy-making roles.

Both Iceland and Norway have adopted a 'three-pillared' institutional structure, comprising of a ministry taking political responsibility, a marine research institute providing scientific evidence, and a directorate undertaking executive functions in the day-to-day implementation of fisheries management.

Ensuring the independence of scientific advice

In order to achieve the commitment to sustainability, decision-makers will need ready access to scientific evidence in order to make informed decisions. Taking into account the best available scientific evidence is also an obligation under UNCLOS.

All three case studies utilise scientific evidence in their fisheries decision-making processes. In Iceland and Norway scientific evidence plays an important role in decision-making and there is broad acceptance and understanding of scientific advice. This has been facilitated by marine research institutes which are independent of political and ministry influence, and also by open and transparent decision-making processes where the scientific community, industry and environmental interests interact with each other. The Faroe Islands also has an independent marine research institute feeding scientific evidence into the decision-making process. However, in marked contrast to Iceland and Norway, scientific advice has often become politicised. This has been partly attributed to a lack of environmental interests, meaning the scientific community has been left to take on this role in addition to providing advice.

Recommendation 8: ***Invest resources in maintaining links to international scientific advice and further developing scientific research capacity in the UK to ensure fisheries decisions are based on a comprehensive understanding of the health of the marine environment.***

Recommendation 9: ***Legislate to ensure fisheries decisions are based on independent scientific advice which is readily available and free from influence from political and economic interests.***

Recommendation 10: ***Ensure environmental interests are actively engaged in decision-making processes, alongside industry, to avoid advice from the scientific community becoming politicised.***

Stakeholder engagement

It has long been recognised that successful fisheries management relies on the involvement of stakeholders from the fishing industry, and that the design of institutions to facilitate this stakeholder engagement is crucial.[23] A culture of trust and mutual respect should be developed, and incorporation of different perspectives and types of knowledge, including the 'traditional knowledge'[24] possessed by those working at sea, encourages a culture of decision-making that is inclusive and consensual. Given the diverse interests and the variation present in the UK's fishing industry, including all interested parties in policy-making processes is crucial to ensure decisions are not biased towards one particular group.

Our findings from Iceland and Norway in particular confirms this. In both these countries good working relationships have been developed between policy-makers, industry and the scientific community. In Norway stakeholder engagement in decision-making has been formally institutionalised as part of the annual 'regulatory chain'. This allows industry representatives, together with local authorities and environmental interests, to meet to discuss scientific evidence and feed into the annual regulatory cycle. It also fosters trust and understanding between the various parties.

Evidence from Iceland shows that an open, public monitoring system which is easily accessible online can foster trust not only between the government and industry but also between those working within the industry. Such a system becomes almost self-policing and makes 'cheating the system' practically impossible. It can also reduce administrative costs.

Recommendation 11: ***Legislate for the creation of a stakeholder committee which has formal consultation rights as part of fisheries management decision-making processes and is able to contribute to discussions that occur before and during annual negotiations with other coastal states, and in the setting of fisheries management regulations.***

Recommendation 12: ***Ensure the composition of this committee is balanced among the diverse stakeholders present in fisheries, making sure it is not biased towards one set of interests or segment of the fishing industry.***

Recommendation 13: ***The creation of a real-time monitoring system, similar to Iceland's, that provides open, online access to quota allocations and tonnage landed.***

Ensuring benefits for local communities

One of the hopes that the fishing industry has had with Brexit is that the ability to catch more fish will have a social benefit in fishing communities. However the nature of the UK's fishing industry is diverse, and different fishing communities rely on different types of fisheries-related activity.

All three of our case studies show that fisheries management decisions can have a profound impact on local communities where fisheries is the main economic driver. In Iceland the introduction of the ITQ system led to a decline in industry activity in more remote fishing communities. In Norway, strict licensing and ownership rules alongside the decision to withdraw subsides for the fishing industry led to a reduction in the fishing fleet. While this reduced the numbers of those working in the fishing industry, low unemployment rates and a strong national economy served to mitigate the impact on local communities. In the Faroe Islands the introduction of an auction system and development quotas aim to provide a more territorially equitable system in which remote communities with relatively high unemployment rates will see increased employment opportunities.

Recommendation 14: ***Proper impact assessments should take place before post-Brexit fisheries management framework is in place. This will take into account the potential model of fisheries management that the UK adopts and will assess its impact on communities and the industry itself.***

Recommendation 15: ***A commitment by government at the UK and devolved levels to ensure that as much extra economic activity that is generated as a result of leaving the CFP stays within fishing dependent communities as possible.***

Endnotes:

1 https://ec.europa.eu/fisheries/cfp_en

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16 Under the TAC system that is in place for pelagic fish stocks, the relationship between the scientific and industry community is much more collegial and based on trust.

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