



Project UK south west crab management workshop: Final report

Authored By: Jo Pollett and Katie Keay

Version 2.3



Version	Author/reviewer
Version 1 - 17 June 2022	JP
Version 2 - 27 June 2022	JP & KK
Version 2.1 - 6 July 2022	Review by Project UK management group
Version 2.2 - 5 August 2022	Review by industry
Version 2.3 – 16 September 2022	Review by Project UK Steering Group

This document has been drafted based on discussion during Project UK Steering Group meetings, discussions during crab management workshops and feedback from industry representatives. The content should be considered a reflection of these conversations, and is not considered the view of the Marine Stewardship Council. MSC staff facilitate Project UK, but all decisions and outputs are the result of the Steering Group.

Project UK south west crab management workshop: Final report



Executive Summary

Project UK is a collaborative partnership between the fishing industry, regulators, scientists, NGOs and the seafood supply chain. The project aims for an environmentally sustainable future for UK fisheries, through implementation of credible Fishery Improvement Projects (FIPs). Industry representatives on the Project UK crab and lobster FIP Steering Group requested support from the Project UK Secretariat to help coordinate and deliver their requests to government for how they would like the crab fishery in the south west to be managed.

Input was gathered from industry through an online survey and five in person workshops, as well as additional written and online input from industry members unable to attend in person. All local crab fishermen were encouraged to participate, and details were shared through direct emails, social media (Twitter), word of mouth and harbourside posters.

The groups discussed a range of technical measures, input controls and output controls. There was clear consensus across the workshops for increased enforcement, and improved regulations for the quality of crab landed. There was general agreement that the current fishing pressure is too high, and that a mixture of licence caps and effort controls could be used to ensure management is fair and equal across the fishery to secure the sustainability of stocks while maintaining the socioeconomic requirements of the fleet.

Concerns raised by industry about the implementation of each management approach have been recorded and will enable fishery managers to understand the risks and considerations needed prior to considering any of the management options discussed. Research needs are identified to ensure the successful implementation and monitoring of these management measures. Workshop attendees expressed a desire to be included in any management process developed for this fishery, and to be provided with regular feedback from management authorities on the success of management measures.

Based on the FIP requirements, and using the discussions in the workshops, a south west crab and lobster draft harvest strategy has been developed and included in Annex 1. This is intended as a model for how future management could look in the south west crab and lobster fishery. Many of the management interventions will be most successful if applied at a national level. The findings of this report will be communicated to the national Crab Management Group to support the development of the national crab and lobster Fishery Management Plan.

Contents	Page
Introduction	4
Survey results	5
Delivery of workshops	5
Workshop summary	6
Table of comparison	7
Summary of key discussions	7
Conclusions and recommendations	9
Annex 1: Draft harvest strategy	10
Annex 2: Workshop notes	14

Introduction

Project UK is a collaborative partnership between the fishing industry, regulators, scientists, NGOs and the seafood supply chain. The project aims for an environmentally sustainable future for UK fisheries, through implementation of credible Fishery Improvement Projects (FIPs).

The Project UK south west crab and lobster FIP was launched in 2017, and has an associated Steering Group comprising relevant stakeholders who inform, support, and contribute to the success of the FIP. Steering Group members provide information and expertise, and are essential in defining and delivering each Action Plan – which outlines a series of steps for fishery improvement. FIPs run for a pre-determined timeline, usually five years, agreed by the Steering Group using the draft Action Plan to inform their approach. This timeline is set in motion following formal agreement of the Action Plan by all relevant Steering Group members. The most up-to-date Action Plan for each FIP can be found on the Project UK website¹.

The FIP Action Plan requires the south west crab and lobster FIP Steering Group to develop a robust harvest strategy and harvest control rules for the fishery. There is likely to be significant overlap with the current focus from the UK government on developing national fishery management plans for various shellfish species. Industry representatives on the FIP Steering Group requested support from the Project UK Secretariat to help coordinate and deliver their requests to government for how they would like the crab fishery in the south west to be managed.

Crab fishermen in the south west have been attempting to address management issues for many years. With the implementation of the Fisheries Act and development of national Fishery Management Plans, now is a great opportunity for industry to have their say on how they want the fishery to operate, and work together to agree the sustainable management options that work best for the industry.

After consulting with the national Crab Management Group, a group set up by industry, Defra and Seafish, they expressed an interest in hearing management suggestions provided by industry that could be used as a pilot for the south west and then potentially scaled up to the rest of the UK through the upcoming national Fishery Management Plan. At present, the fishery is managed through a combination of IFCA byelaws and the Western Waters Effort Regime, which is currently under review by the CMG. The most recent Cefas stock assessments indicate that south west crab and lobster stocks are healthy.

¹ <https://www.projectukfisheries.co.uk/crab-lobster>

Survey results

To determine the structure for the in-person workshops, an online stakeholder survey was circulated to the fishing industry across the south west in February 2022. There were two main questions which focussed on the biggest concern for management in the south west crab fishery, and any suggestions for alternative approaches to management.

There were 57 responses to the survey, which can be summarised as shown in the bullets:

1. What are your biggest concerns for management of the south west crab fishery?

- Latent capacity
- Nomadic vessels
- Need for more industry involvement in decision making
- Increasing pressure on the stock
- Need for more scientific data on the crab fishery
- Lack of enforcement of current management measures
- Large vessels inside 6nm/fishing over winter
- Landing of soft shell crab
- Inconsistent minimum landing size (MLS)
- Fishing/scrubbing berried females
- Recreational fishing

2. Do you have ideas for alternative approaches to management?

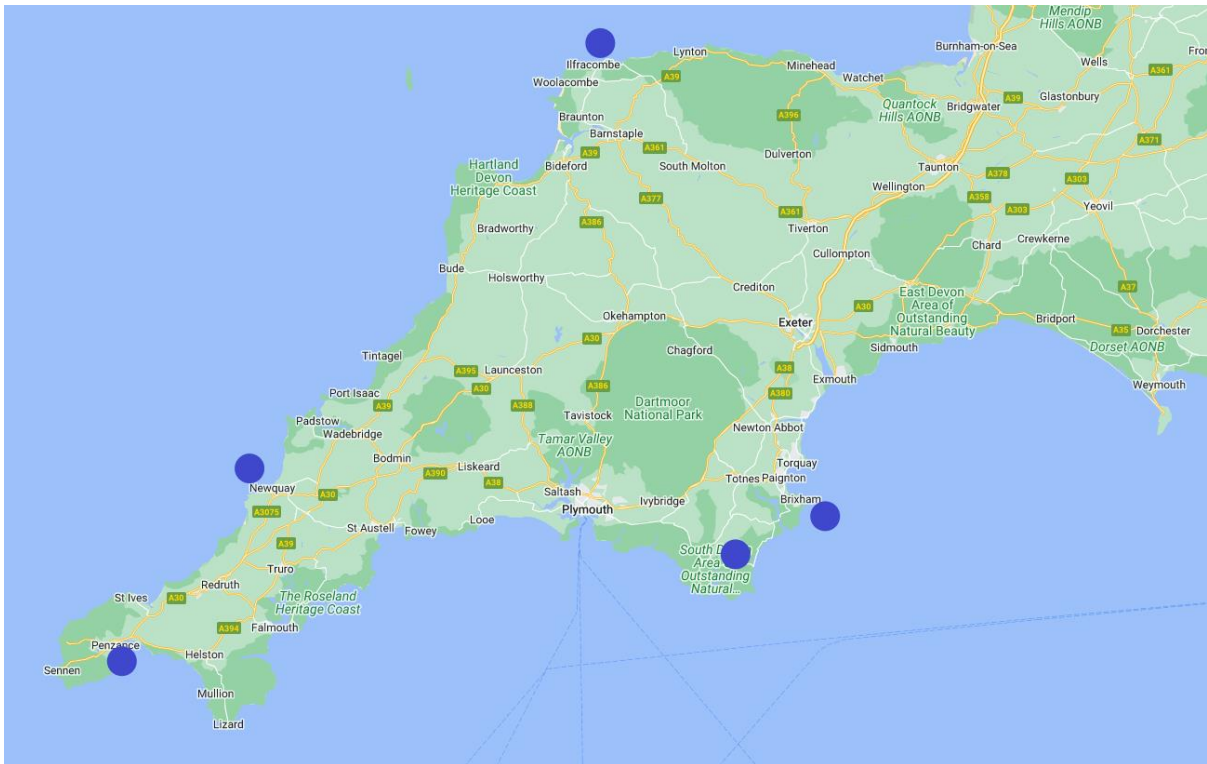
- Pot limits/enforcement of pot limits
- January-March closure
- Alignment of minimum landing size (MLS)
- Effort or quota restrictions for larger vessels
- Differing management needs for small and large vessels

Delivery of workshops

The Project UK Secretariat worked with the Steering Group to coordinate and deliver five workshops in Devon and Cornwall in Spring 2022. All local crab fishermen were encouraged to attend, and participation details were shared through direct emails, social media (Twitter), word of mouth and harbourside posters:

- 30th March: Carlton Hotel, Ilfracombe
- 31st March: Stokenham Village Hall, Stokenham
- 1st April: Plymouth University Brixham Laboratory, Brixham
- 20th April: Atlantic Hotel, Newquay
- 21st April: Seafood Training Hub, Newlyn

Figure 1: Map of Devon and Cornwall showing the approximate locations of the five in-person workshops (clockwise from top: Ilfracombe, Brixham, Stokenham, Newlyn and Newquay).



At the request of industry, an additional online workshop was held on 5th May. Several written submissions were also received and incorporated into this report.

Workshop summary

In total there were 43 attendees and 5 written contributions, representing both inshore and offshore fishermen as well as processors. The two questions from the online survey formed the basis of discussions in the workshops.

The groups discussed the following management options and which they felt are, or are not, suitable for the south west crab fishery.

Technical measures

- Minimum landing sizes
- Closed areas
- Gear modification
- Non capture of females (berried and/or non)

Input control

- Managing fishery by licence
- Capping all unused shellfish permits and entitlements
- Days at Sea

- Pot limit

Output control

- Managing fishery by TAC
- Managing fishery by bag limit

Table of comparison

These results are intended to represent the range of input across participants in each workshop, even where views differed amongst individuals. These are summarised in the table below.

Management option	Workshop						Other written input
	Ilfracombe	Stokenham	Brixham	Newquay	Newlyn	Online	
Seasonal closure	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Alignment of Minimum Landing Size (MLS)	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Restrictions for larger vessels	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Gear modification e.g. escape gaps	Agreement	Disagreement	Disagreement	Disagreement	Disagreement	Disagreement	Disagreement
Ban on berried females	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Managing fishery by licence	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Capping all unused shellfish permits and entitlements/latent capacity	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Days at Sea	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Pot limit	Disagreement	Disagreement	Disagreement	Agreement	Agreement	Agreement	Disagreement
Managing fishery by TAC	Disagreement	Disagreement	Disagreement	Disagreement	Disagreement	Disagreement	Disagreement
Zonal management	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Prohibition of crab as whelk bait	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
SSS - size, sex, season	Agreement	Disagreement	Agreement	Disagreement	Agreement	Agreement	Agreement
Recreational limits*	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Management of quality	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement
Increased enforcement of regulations from IFCA/MMO	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement	Agreement

	Agreement
	Unsure or only with other caveats
	Disagreement
	Not discussed or not considered an issue

*Despite survey results, this was not considered an issue by workshop participants

Summary of key discussions

The workshops were delivered in a way that ensured individual opinions could be shared as well as group agreements and priorities being recorded. As such, some of the key discussions showed consistency across several or even all of the locations. The table above indicates where there were positive or negative opinions on each management measure discussed, and helps demonstrate where there is alignment across the south west.

Only retaining high-quality crab

There was agreement across the workshops that increased enforcement to prevent the landing of poor quality crab is needed to keep stocks on the ground and contributing to the breeding population. This includes a **ban on landing berried females**, a **ban on landing soft shell crab** (although research is needed to provide a consistent definition for this), and **alignment of the minimum landing size** across inshore regions and offshore. **Increased enforcement** through the presence of officials both at landing sites and boarding vessels is welcomed.

Reducing pressure on the stock

All groups agreed that the **pressure on the stock** is too high. **Latent capacity** needs addressing as a priority but there was not agreement on how this could be fairly done given the costs associated with those licences. One suggestion was to pause latent licenses in the short term while more robust management is introduced, and that this pause should only apply to larger vessels as smaller vessels need more flexibility in what they catch. While there is already a licencing system in place, there is not a process for capping this, or for restricting access to reduce pressure. **Impacts on the stock from French and other international vessels** came up in several workshops, and these should be considered as part of a new approach to management.

Larger vessels

There was generally agreement that **increased management is needed for larger vessels**, along with an updated **definition of what constitutes a 'large' vessel**, to avoid the exploitation of loopholes. No one felt that TAC would be a good solution, and one group considered that pot limitations, with the appropriate technology to enforce it would be best. Most groups felt that effort management through **Days at Sea (DAS)** was appropriate for larger vessels, and needs applying to anyone fishing offshore. It was suggested this could be done through an annual or biannual declaration of where vessels intend to fish. The use of DAS would require calculations of CPUE, and a conversion of current effort through pot numbers or kilowatt/days into a DAS system. There was a suggestion to place a cap on annual tonnage of crab landed per vessel, determine by historical landings (e.g. last 5 years), with agreement to cut back by X% if the stock declines. This approach could then be phased in for smaller vessels, but it was noted by several groups that small vessels are more likely to be restricted by the weather than by a DAS approach. There was concern that a pot limit is not enforceable and the effort could be manipulated by using different pots or modifying pots. There was also no agreement on how a pot limit could be allocated.

Mandatory fishery closures

There was agreement that **closures** could be useful, but no agreement on the best time of year for a closure. Smaller vessels prefer a winter closure but larger vessels would prefer summer, and there was no agreement on whether pots should be left in the water during a closure. There was a suggestion that a spatial closure limiting the size of vessels inshore could help relieve the pressure on the stock. There were concerns that a closure could have implications for both markets and crew, and there would need to be a consideration of how to deal with this. The Devon Inshore Potting Agreement² was referred to during several workshops as an example of best practice, and a useful approach to managing gear conflict.

There were **gaps in knowledge** identified during the workshops that would need to be addressed to ensure success of future management:

Effort research:

- Review of accuracy of CPUE data for use in monitoring uptake of fishing opportunities, including consideration of inflated pot reporting.
- Review of how to determine appropriate pot limit allocation, including the efficiency and effort distribution of different types of pots.
- Review how days at sea could be fairly phased in for all vessels >10m over time without leading to misreporting in the short term.

² [South Devon IPA - Trawling & Crabbing Chart - Devon and Severn IFCA](#)

- Consolidate data on number and size of vessels in the fishery to existing determine pressure, and research a more appropriate approach to define the fleet and fishing effort rather than classifying and managing by vessel size.
- Clarification on international vessel access to the fishery, and how much pressure this contributes to the stock status at present.
- Determine a fair process to cap licences belonging to smaller vessels that need to be flexible in what they catch so might not catch some species for several years.
- Review of potential displacement, and consideration of other FMP approaches and how this might interact with crab and lobster fisheries.

Stock science

- Review of appropriate minimum (and maximum) landing sizes, and increased data on size of maturity and how this contributes to stock replenishment.
- Review of life history traits and lifecycle analysis to determine the most appropriate seasonal closures for stock health, including whether a closure could be timed with an increased presence of soft shell crab on the ground, and if there are trends in mating or juvenile activity.
- Research potential legislative definitions of soft shell crab, and develop tools to qualify shell hardness for enforcement purposes.
- Review of natural mortality levels, or impacts on the stock from sources other than the direct fishery (for example indirect impacts of trawl or dredge fishing in the same area).

All workshop participants requested management and science be centrally coordinated, and highlighted the importance of communication between managers and industry.

Conclusions and recommendations

Full details of the discussion from each workshop can be found in Annex 2. Based on these conversations and the consensus on several management approaches, a draft harvest strategy has been outlined in Annex 1. This harvest strategy comprises of fleet interventions and fishery interventions, and is intended to manage the fishing effort and stock biomass at sustainable levels.

Gaps in knowledge were identified during the workshops, and the success of a robust harvest strategy requires more research into appropriate processes for effort allocation and improved understanding of stock health.

This report was shared with all workshop participants to ensure the workshop discussion were accurately recorded. The report will be circulated more widely alongside a survey to gather additional feedback on the content and the draft harvest strategy. The report will be presented to the national Crab Management Group for discussion and to inform their development of the national crab and lobster Fisheries Management Plan. Results will be communicated to the relevant management authorities for their consideration, and a summary of progress on all next steps will be circulated to industry to ensure they remain informed.

Any management agreed by the CMG for inclusion in the Fisheries Management Plan will contribute to Project UK FIP actions related to harvest strategy and fishery specific management. In particular, the agreement of a harvest strategy and associated harvest control rules will improve Principle 1 scores to a level that the fishery could choose to enter MSC assessment if a client group was interested in demonstrating third part certification of the sustainability of the fishery.

Annex 1: Draft harvest strategy

Project UK FIPs use the MSC Standard as a tool for supporting UK fisheries to reach a level of sustainable best practice. Principle one of the MSC Standard focuses on the health of the target species, and includes requirements for a robust harvest strategy and harvest control rules.

The crab and lobster FIP action plan identifies harvest strategy and harvest control rules as aspects of the fishery that should be targeted for improvement. A harvest strategy is the combination of monitoring, stock assessment, harvest control rules (HCRs) and management actions that are required to bring about the sustainable management of the fishery.

The harvest strategy sets out the management actions necessary to attain defined ecological and sometimes economic objectives in a particular fishery, including achieving the management objectives expressed in the target and limit reference points. It should specify a process for conducting assessments and monitoring the biological and economic attributes of the fishery as well as specific rules (i.e. HCRs) that control the fishing effort.

The best practice level of the MSC Standard looks for evidence that:

- The harvest strategy is responsive to the state of the stock and the elements of the harvest strategy work together towards achieving stock management objectives.
- Well defined HCRs are in place that ensure that the exploitation rate is reduced as the point of recruitment impairment (PRI) is approached, are expected to keep the stock fluctuating around a target level consistent with (or above) MSY.

Draft harvest strategy for crab and lobster in the south west

The overall harvest strategy is underpinned by Defra and the MMO, who are responsible for managing crab fisheries beyond 6 nautical miles, whereas from the coast out to 6 nautical miles, responsibility lies with the Inshore Fisheries and Conservation Authorities (IFCAs). The fishery specific harvest strategy for the south west crab and lobster fisheries will align with the national regulations and management efforts. The following draft strategy has been developed through discussion during Project UK management working group meetings and input from fishermen during these stakeholder workshops.

Fishery objectives

The objective of the harvest strategy is to manage the fishery in accordance with the objectives of the UK Fisheries Act 2020. Fishery objectives set out the direction and aspirations to achieve in the long term.

The primary objective is to continue to maintain sustainable and well managed shellfish fisheries operating within a healthy marine environment. In pursuing the primary objective, the harvest strategy aims to:

- maintain the brown crab and lobster resource at, or returned to, a target exploitable biomass level that aims to maximise sustainable yield for the fishery.
- minimise and mitigate any unacceptable ecological risks arising from fishing-related activities
- maximise economic performance of the commercial sector

- manage excess capacity to improve social and economic benefits
- monitor the broader social and economic benefits of the fishery to the community

The harvest strategy will manage the fishery using a precautionary approach and be responsive to changes in the state of the stock. Stock assessments are produced regularly using length-based assessment models. These assessments show the current status of the stocks relative to maximum sustainable yield reference points.

The key elements of the harvest strategy are data collection, estimates of stock status carried out by Cefas, and management measures through effort control and technical measures.

Management roles and responsibilities

There are two tiers of management in English waters:

- National management enforced by the MMO- within 12 nautical miles of the coastline up to the 200 nm Exclusive Economic Zone.
- Regional, inshore management within 6nm of the coastline implemented and enforced by IFCAs, which also enforce national measures within their district. In addition to national legislation, each regional IFCA has their own byelaws to manage their local inshore fisheries.

A significant component of Cefas' assessment is the evaluation of the stock against pre-determined reference points which are good MSY proxies. The national Crab Management Group provides a forum for industry engagement and co-management of the resource.

Managing the performance of the fishery

Key indicators measure how the fishery is performing. The indicators relate to the objectives and use reference points to establish acceptable performance. The indicators measure the relative amount of biomass of key stock(s) against proxy target and other reference points.

A stock assessment result can indicate what the exploitation rate might be and how big the stock might be, but this is of limited use to fishery managers as they try to decide whether these rates are appropriate. The production of reference points aims to give managers benchmarks to see whether the management structure is being effective and whether fishing rates are above or below these points.

Reference points can be determined to achieve a number of different management objectives. For instance managers could simply want to ensure that the fishery was unlikely to collapse the stock, or alternatively managers could want the fishery to derive maximum long-term profit from the stock.

For crustacean fisheries, scientists cannot directly calculate MSY and so rely upon alternative ways to estimate it. The stock assessment uses 35% of virgin Spawner per Recruit (SpR) as the **MSY level proxy**, and this is commonly used around the world to estimate the fishing rate likely to deliver MSY.

A second point termed a **limit reference point** has also been calculated and having fisheries operating beyond this level is considered to carry higher risk to the production of further generations. This value is defined as 15% of virgin SpR.

Additional performance indicators that can be used to monitor the Harvest Strategy (not exhaustive):

- Stock assessment outputs

- Size-based metrics, e.g. length frequencies, mean size, 90th percentile, mean size of biggest 10% (some already included in assessment output)
- Effort data with fine scale spatial information (e.g. subrectangle)
- Proportion mature (females)
- Sex ratio (lobsters)



Annex 2: Workshop notes

The following notes are summarised from conversations and notes within each workshop. They cover all discussion points and have not been amended or fact checked. The majority of discussions were related to crab, but as most crab fishermen also fish for lobster there were also conversations on the best approach to managing the lobster fishery.

Ifracombe, Devon, 31 March 2022

Technical Measures

- *Minimum landing size*

There should be a consistent national minimum landing size, the same for both inshore and offshore. A maximum size limit would also be acceptable.

- *Closed areas (spatial/temporal)*

The main fishing season is autumn to Christmas. Crab is caught near the 6nm limit, so bad weather naturally closes the inshore fishery between January and March, and storms dictate whether fishing is possible.

There was concern about the practicalities of having to bring pots in during a seasonal closure. If a fisherman has 1400 pots and the vessel can only carry 150 at a time, bringing them to shore takes a significant amount of time.

Closed areas should apply to bigger boats which can fish in all weather; currently it is the smaller boats that are being penalised by the stricter inshore management. The participants agreed that it would be good to not have >12m boats inshore but recognised that might not be appropriate for the south Devon coast. They also noted that the French are putting pressure on the crab stocks, but they are not seen inside the 12nm in North Devon.

- *Gear modification*

There was strong support for the use of escape gaps in every pot. This allows juveniles to escape, which avoids fishermen having to handle them and risk damaging them. Not having escape gaps results in 10-20 more arm movements per pot to remove bycatch. The participants did note that escape gaps are high effort to sew in and added that clip ties do not work as the crabs can cut through them.

Pot design is not regulated, and changes are based on individual preference. Consequently pot efficiency is improving regularly and contributes to the increased effort in the fishery.

- *Quality*

There should be more enforcement on the quality of crab landed. Only whole crab should be landed. Damaged crabs can still contribute to rebuilding the population and should be discarded at sea as they will not reach as high a price anyway. Soft shell crab should also be thrown back rather than being used for whelk bait. The participants suggested introducing legislation to prevent the selling of soft shell crab and/or single-claw/damaged crab, estimating this change could put around 10% of the population back in the sea to rebuild the stock.

There was agreement that there should not be any landing or scrubbing of berried females.

Input controls

- *Days at sea*

The participants thought that managing the inshore fleet using days at sea would not work at all but could be an option for the offshore fleet.

- *Pot limit*

A pot limit would not work as it cannot be enforced and there is currently no clear way to determine the number of pots per vessel. There was concern that pot tags would not work as they could get lost too easily and contribute to loose plastic pollution in the sea.

The Catch App requires fishermen with vessels <10m to submit data digitally, and electronic log books require vessels >12m to record the number of pots, date, and total catch weight. There is no app or electronic record for 10-12m vessels, so they must submit paper records. Fishermen frequently record more pots than were deployed out of concerns that future management will be based on recent track records.

Output controls

- *Managing the fishery by TAC*

The participants said that TAC would penalise small vessels but could work on >15m fleet. There would need to be safeguards in place to ensure TAC was not transferrable to bigger boats. Reference years are usually over the previous 2-4 years, but that does not work well for small vessels which are limited by many variables and can have high fluctuations in catches from year to year. Using the best year in last 20 years might be more suitable to ensure smaller vessels are not penalised by a lower TAC allocation.

Other

- *Enforcement*

There was a lot of support for the Devon and Severn IFCA, with participants saying they “have got it right” and it is progressive.

- *Science*

Fishermen have been working with Cefas around Lundy Island to gather data for no take zone for lobsters. The participants said they are always open to new ideas to contribute to data collection.

Stokenham, Devon, 31 March 2022

Technical Measures

- *Minimum landing size*

There should be a consistent minimum landing size (MLS) inshore and offshore. The MLS in Devon is larger as crabs in the area are generally larger than elsewhere in the UK. A national MLS would work well for Devon but might not work for rest of UK because regions where there is a smaller MLS in place will disagree with it. For example, Cromer crab has a dispensation to land 115mm crab, so if a consistent national MLS is implemented it may stop the fishery in some areas.

There were concerns that if all UK crab fisheries had the same MLS, the 'premium' size of Devon crab becomes the same for everyone. The group agreed that Devon crab is a superior quality, as well as size, and as a result buyers seek crab specifically from this region.

- *Closed areas (spatial/temporal)*

The Devon Inshore Potting Agreement (IPA) might not directly contribute to protecting stocks, but it does protect livelihoods. Some other regions with gear conflict would benefit from zonal management, which gives people sense of ownership and leads to best practice management for socioeconomic benefits.

Larger vessels >15m are not allowed within 6nm in Devon. Taking this approach for all inshore areas across the UK could be appropriate management.

Smaller vessel owners would prefer a winter closure. Larger vessel owners would prefer to close in June and July when the female crabs are bad quality, and continue targeting the winter-based male fishery.

There was a suggestion that fishermen could have flexibility to declare closure months at the start of each year. They would declare whether they intend to fish inshore or offshore, and which for months, and abide by the relevant management rules for those areas. The same approach could be applied using days at sea rather than a closure. One participant suggested there should be compensation for the non-fishing months if there was a closure, similar to terrestrial farmers being paid to leave fields fallow.

- *Gear modification*

Escape gaps are legally required on parlour pots used inshore in the IFCA area. The offshore fishermen expressed reluctance to use escape gaps as there is a benefit in seeing what else interacts with the gear to understand changes from year to year, and the additional effort to discard was not considered significant. They noted that the offshore fishery would not benefit anyway because they rarely catch smaller crab/lobster.

- *Quality*

The group agreed that soft shell crab should be thrown back to sea alive and not be used as whelk bait. They noted this drives the landing of low-quality crab that could otherwise be left to reproduce, estimating this change could lead to up to 40% being returned to sea. There was agreement that banning the landing of damaged crab would encourage better handling practices. A participant said that one-claw crabs are worth a third of the value of an undamaged crab and noted that the important China market demands whole, undamaged crab.

There was a suggestion that there should be quality control and enforcement at the first point of sale to eliminate poor quality crab. To ensure this happens enforcement is needed but this requires defining in law what constitutes soft shell crab, otherwise prosecution is not possible.

Berried females should not be landed, and there were concerns that this is currently common practice in the Channel Islands.

Input controls

- *Capping all unused shellfish permits and entitlements*

The group agreed that the biggest concern is that if the price of crab significantly increases a huge number of latent licenses could suddenly return to the fishery and should be the first thing to be addressed. The latent licences mean there is no security for existing fishermen who depend on the crab stocks for their primary income, and those licences must be paused at least until effective management is in place. Currently they estimate that there are 34 beam trawlers that could suddenly switch to fish for crab. The group noted that management must also consider that any caps can result in displacement and pressure elsewhere.

- *Days at sea*

The >15m vessels operating offshore are currently managed by kilowatt days (Kwd) and representatives supported this approach. It is easy to enforce as it is desk based. The timeframes usually work midnight to midnight, 10 days at a time, 160 days per year. However, there is a loophole whereby some high-capacity <15m vessels are able to fish offshore and catch significant numbers of crab, but do not fall into the kwd management system. Therefore the classification of management by vessel size needs to be addressed as regulations based on length are no longer appropriate. The group agreed that DAS should be used on >15m across UK with the aim of reducing it to >10m vessels over time if they fish outside of 6nm.

The group agreed that there could be declaration by fishing area e.g. inshore vs offshore and then vessels have to follow the rules for the area they are fishing rather than by size of vessel. That would provide more flexibility for managing by days at sea (DAS) rather than a seasonal closure, as DAS allows fishermen to choose when to fish, rather than being told by authorities.

- *Pot limit*

Pot limits were not seen as a viable option as there was concern over how this could be enforced.

Output controls

- *Managing the fishery by TAC*

There was little support for this option and concerns in relation to how the track record would be determined.

Other

- *Enforcement*

The group would welcome an increase of resources and increased focus on enforcement of the offshore fleet, noting that there are not enough inspectors seen on harbours or boarding vessels. Fishermen would also value feedback on when enforcement takes place and what the outcomes are.

Any management should be developed with fishermen from the start and consider the regional difference across the UK. There was a suggestion of using two or even three different styles of management depending on vessel size and fishing area.

- *Science*

The group felt it would be useful to undertake research into allocation levels of DAS per vessel type, and what the conversion rate would be based on historic activity, or existing trends on vessel effort. It would also help to understand trends in how many days per year are currently worked and use that to set a yearly limit.

The group requested consistency over requests for science and data collection by using centralised coordination, and that the scientists first review relevant previous reports (such as Nautilus, GAP 2) before doing the same research again. Results from data collection should be fed back to fishermen.

There were also suggestions for more research into more population data for crab, and the impacts of using escape gaps offshore.

The group did not think management using the size, sex and season (SSS) approach would work because of the seasonal differences for male and female crabs. Female crabs are significantly more abundant in the area so management by sex is unlikely to work.

Brixham, Devon, 1 April 2022

Technical Measures

- *Minimum landing size*

The group agreed that a consistent MLS is needed and that this is especially relevant for those fishing across regions (for example the Devon and Cornwall border, or inshore and offshore). They suggested at least 150mm would be appropriate market size for crab and that Cromer crab should align with the rest of the UK. Participants suggested that at 140mm, only 60% of individuals are mature enough to breed.

- *Closed areas (spatial/temporal)*

There was agreement that the Inshore Potting Agreement (IPA) works well by controlling space rather than pots, and this lead to Devon management being a 'better' practice example for the UK. The IPA creates different expectations of fishermen and encourages them to take ownership of the fishery. However, there still needs to be control of the offshore component of the fishery, and the activities of the Irish and French vessels need to be considered in any future management plans.

The group discussed whether a closure would damage the market if there was no crab was available at certain times. This would also impact cost. The only way a closure could work would be for vessels to have the flexibility to declare independently which months they would not be fishing. There was also concern that crab is a mobile species so a seasonal closure may not make any difference to the sustainability of the stock. Management by calendar year was not considered good or effective for licenses - May to April would be better.

The group agreed that beam trawlers and dredgers are doing more damage to the crab stock than the direct crab fishery and were interested in the best way to manage the stock impacts of this.

- *Gear modification*

There was no support for the introduction of escape gaps. These are not considered to be a wide scale management solution and would be an issue for those targeting velvet crab. Escape gaps might work for inshore, small-scale vessels on a voluntary basis.

- *Quality*

The group strongly agreed that the management and enforcement of quality at first point of sale would be effective in improving stock health and sustainability. Removing the market for soft shell crab is easier to monitor than days at sea or pot limits, and would ensure a significant portion of mature individuals are returned to the population. If processors would not accept low-quality crab, and therefore no money can be made by landing soft or undersized crab, then fishermen will stop landing it. This would improve both the price and quality for product, as well as the stock health. For example, if 30,000t of crab is landed a year, of which 8-12,000t is low-quality and should be returned, there would be a significant uplift in the size of the stock in the water.

The group agreed that harsh penalties should be applied both to vessels landing poor quality crab as well as processors accepting poor quality crab. This would become self-policing after a few examples of enforcement and rid the fishery of bad behaviour.

Input controls

- *Capping all unused shellfish permits and entitlements*

In 2018/19 there was a huge increase in demand for crab from China, which led to a massive increase in vessels and increased the fishing pressure on the stock. The price has gone down again but as those vessels still have licences they could switch back to fishing crab at any time, and the stock health would suffer further with the increased pressure.

There was agreement that if latent capacity is not addressed then there would be no point in implementing a management system. The group estimated that there are approximately 107 latent licenses with shellfish entitlements, with a value of about £90 million. One suggested solution was to pause (rather than cancel) those licenses while management measures are agreed.

The smaller vessel owners voiced concern about capping licences belonging to smaller vessels as they need to be flexible in what they catch so might not catch some species for several years, but agreed it could work if applied to vessels over a certain size. Management measures need to be UK-wide (including Jersey, Welsh, Scottish, Northern Irish etc) because of the market access. All changes would need to be implemented over a period of time but some such as addressing latent capacity could move faster.

- *Days at sea*

There was agreement that management of vessels that catch larger volumes needs to be considered before smaller vessels. In particular, some of the newest vessels need to have limits introduced, but there needs to be a way to determine their fishing efficiency that is not just based on vessel length. If regulations were applied by area (inshore or offshore) rather than vessel size, then all vessels regardless of size outside of 6nm would be managed by DAS. Some data analysis is needed to determine a fair process for distributing effort allocations.

- *Pot limit*

Pot limits are impractical as there is no way to enforce them. Even if technology is used to monitor pot numbers there still needs to be resources available to review the data. There was also concern that pot limits would penalise the inshore vessels.

Output controls

- *Managing the fishery by TAC*

There was concern that TAC does not work for shellfish and the fishery ends up with one or two players owning all the quota, pushing out smaller operators. Track record was not considered to be a reliable way of allocating TAC as it would work in favour of those who have caused the issues in the first place as they will have the largest track record.

There was discussion around whether TAC could be a future management tool after latent capacity and all other management priorities have been introduced, but this would need to be implemented over a long period of time otherwise it could lead to displacement.

Other

- *Enforcement*

There was agreement that greater enforcement measures are needed and are crucial to the successful management of the fishery. The group said they do not see representatives from IFCA/MMO in the harbour other than to measure crab for data collection and stock analysis, and these officials do not have enforcement powers. There was a discussion about the need for more streamlined management, and concerns raised about the high turnover of government staff and the issues this creates for consistency and for the industry to know who to talk to.

There should be harsher penalties for those found to be breaking the law. For example, in France the license is completely revoked for any illegal activity. The fisherman must then reapply for the licence after certain time has passed, with no certainty that they will be successful. This harsh penalty creates a major disincentive against breaking the law.

- *Science*

There was agreement that science should be up to date and relevant to assessing stock health. Fishermen should be engaged in the science from the start, and results should be fed back regularly. Fishermen would like reassurance that data they collect is being used properly, as they have a genuine interest in protecting the stock.

Some of the participants had historical data sets on pots numbers and number of crabs in each pot but have not yet shared the data as they are not convinced it would be valued. They would be open to hosting a government researcher if the research is centrally managed and beneficial to industry, for example looking at catch per unit effort (CPUE) or mortality levels.

To be able to measure shell hardness and enforce the avoidance of soft shell crab a shell 'pressure tester' could be created. One participant suggested that something like a fruit hardness tester (as used in the avocado industry) might work to quantify crab shell hardness on a scale and could be used by enforcement officers.

- *Recreational fishing*

The group discussed the impact of recreational fishing and noted there were some frustrations, but this sector does not have a significant impact on the stock.

Newquay, Cornwall, 20 April 2022

Technical Measures

- *Minimum landing size (MLS)*

There should be a consistent MLS nationally, and at a minimum by stock area (i.e. Cornwall and Devon should align), as well as inshore and offshore. This would increase breeding stock on the ground. Consistency would make enforcement of the MLS simpler for the management agencies and avoid any grey area around where fishing has taken place, although there were concerns about how this could be enforced for French vessels. There were questions about whether Cromer would still be an exception to the rule if there was a nationwide MLS.

- *Closed areas (spatial/temporal)*

Several fishermen said they do not fish between January and March because of the weather and supported a three-month fishery closure across the whole of the UK. However, if a closure was applied nationally then there would need to be a rule requiring pot removal from the water. Pots are expensive and those that remain in the water over winter are often lost. The logistics of removing all pots would be challenging and potentially unfeasible. In addition, many vessels would not be able to retain their crew if the fishery closed for several months. Some vessels do need to go out to turn over pots during the closed period, and there was agreement that larger vessels would not want to stop fishing over winter as they need to go out all year round to remain profitable.

There are large boats operating in areas where smaller boats usually work and are outcompeting the local fishermen. These large vessels have a lot of crew and can operate in all weather conditions. Bad weather has always acted as a self-control mechanism preventing local fishermen in small boats from fishing but the new larger boats are upsetting this balance and putting pressure on the stock all year round. Larger capacity boats are also endangering smaller fishermen by forcing them to fish further out than their boats allow in dangerous weather and risk their lives to just make ends meet. There has been a reduction in inshore catch because crab are migratory and are now being caught before they make it inshore.

Gear conflict and the presence of the French was also mentioned, but generally this is more of an issue offshore.

- *Gear modification*

Escape gaps can be effective but they prevent fishermen from learning about what is happening at sea; as long as pots are removed frequently then bycatch generally survives. Escape gaps are just another piece of plastic to fall off into the sea. To enforce the use of escape gaps there would need to be a renegotiation of the MLS to reduce the impact on overall catch volume. While escape gaps might be good for the perception of the fishery they are unlikely to have an impact on the health of the stock.

- *Quality*

Merchants and processors need to be accountable for having undersized or low-quality crab in their tanks; until low-quality crab is rejected by the market then it will continue to be landed and sold. This issue seems to be worse in vertically integrated businesses providing a daily wage so there is no disincentive to catch soft shell crab.

As soft shell crab is mostly sold for whelk bait, one participant suggested that a rule be implemented stating that whelk bait can only be purchased from processors rather than direct from the boat. This

would ensure there is an enforceable process in place. The group discussed whether crab should be allowed to be used for whelk bait at all, because banning it would mean only harvesting the best quality, which in turn would improve the quality of catch and leave more crab in the sea.

There was agreement that berried females should be returned to sea but there are some who land them anyway. The ban on berried crab needs more clarity and better enforcement, but there is no information available on the legislation.

Input controls

- *Managing the fishery by licence*

In Cornwall fishermen need to apply annually for an IFCA shellfish permit to fish crab inshore. This system could play a part in regulating the fleet capacity if the IFCA declined permits once a pre-determined limit is reached. However, the group had found that the IFCA does not tend to decline shellfish permits so as to avoid discrimination and all applications result in shellfish permits being issued.

- *Capping all unused shellfish permits and entitlements*

Latent capacity was a concern but not the top priority for this group. Small scale fishermen need the flexibility to switch between fishing different species, and this may mean that some years they don't land any crab but they would not want their licence taken away because of that. There was concern about netters switching to fish crab and the additional pressure on the stock as a result.

- *Days at sea*

The inshore north coast fishery can manage itself through DAS because the weather rules out fishing through much of winter.

'Super crabbers' are causing a negative impact on the stock so management caps through effort or quota would help. DAS could be applied to larger or more efficient vessels but wouldn't work to manage smaller vessels as they don't go out often enough. If there was management to regulate how much the larger vessels can catch this would help the local industry.

- *Pot limit*

The group agreed there are currently too many pots and larger vessels fishing inshore and gave an example of a <10m boat with almost 3,000 pots. A pot limit would need to be capped by vessel length or crew size, and the group was not certain whether it would actually reduce the pressure on the stock. They suggested a limit of 400 pots per crew member, but expressed concern that this might lead to displacement of activity for vessels that don't have enough pots to remain viable, and wondered whether a cap per vessel would work better. However, there was concern about how a pot limit could be enforced, and whether allocating pots per crew member would create a loophole by hiring more crew per vessel.

The group also discussed how the types of pots have now changed, including how often they need to be lifted. For example, an inkwell pot left in the water too long would allow everything to escape. Access to grants has recently made it possible for extra effort to come into the fishery, and participants requested that in future any public grants need to align closely with the management approach.

Other

- *Enforcement*

Lack of enforcement is a priority for this group. The participants said they have not seen MMO or IFCA officers board a shellfish vessel and said they seem to prioritise trawlers and dredgers, or monitoring specific vessels. MMO/IFCA representatives are rarely seen in on quayside unless it is the research team, who do not have enforcement duties or powers.

Whilst the group noted the Cornwall IFCA means well and can be helpful, fishermen want to see an increased presence of IFCA officers in the area, including more enforcement and more boarding. The example of the Northumberland IFCA was given, where levels of enforcement are much higher.

- *Science*

There were concerns about the duplication of effort for science and data collection for management, and a request for the IFCA, MMO and Cefas to coordinate and share information. For example, the recording App suggested by the IFCA is not approved by MMO, which now means fishermen are recording catch both by paper for the IFCA and digitally for MMO.

One participant said fishermen often provide additional data on v-notching lobsters and juveniles but do not receive an acknowledgement of whether it is useful, or what other data they could be collecting that would help with management. This is demotivating. They would like the opportunity to contribute to decisions about what data is collected and what it is used for.

The group suggested it would be useful if MMO could provide effort data to advise management, and asked for a monthly one page summary to understand how their data is being used. They were interested to understand the relationship between stock health and fishing effort. They noted that there still seems to be enough crab on the ground but fishermen are working harder to get the same catch and using more gear to make it viable because the costs of fuel, bait and crew are all higher. The price of crab has not increased in line with the costs.

The group did not think the size, sex and season (SSS) approach would work as the brown crab fishery is 90% females so there would be market issues.

- *Involvement in management decisions*

Industry wants to be included in management decisions from the start. Historically, they have felt like a consultation is just a formality or tick box exercise when managers have already decided on the approach they want to take. They acknowledged it is likely to be a challenge in engaging fishermen who do not want to attend meetings and/or already feel like they will not be listened to. However, it is important for management authorities to build a relationship with fishermen, and be flexible around weather conditions and tides, and choose a location where they are likely to be anyway. There was a request for MSC to present this draft report online to the workshop attendees as well as sending by email. The group would value feedback on how successful any new management measures are and would like to see a review undertaken and fed-back to fishermen.

- *Recreational fishing*

Cornwall doesn't really have an issue with recreational fishing. There are some people with a few pots but it doesn't have a massive impact on the industry.

Newlyn, Cornwall, 21 April 2022

Technical Measures

- *Minimum landing size (MLS)*

The inconsistent MLS results in difficulties enforcing the landing of undersized crab and creates loopholes that can be exploited. The group agreed that a consistent inshore and offshore MLS is essential for all shellfish species to reduce loopholes. A nationwide approach would be best but regional or stock-based consistency might be more feasible. Implementing one MLS across the country wouldn't account for the differences in average individual size seen between regions. Joined up management from the MMO and IFCA is needed to enforce the MLS.

- *Closed areas (spatial/temporal)*

The group discussed a January to March closure, consistent with how the fishery was historically managed based on weather conditions. They agreed this approach could help as currently there is no rest period for the stock, but it would only be possible if there was a closure of the whole UK fishery and gear could be left in place (with no bait and doors open).

There was concern about access to markets if the fishery did not operate all year round. If the closure is not applied nationwide then it will impact market access and crew availability. Further concerns were raised that there is no space to store pots on land, and bringing gear could mean losing access to that fishing area or create a race to deploy pots once the fishery reopened.

There was a suggestion that a closure inside 3nm could work as the weather limits this fishery during this period anyway. It might be possible to restrict the areas that vessels fish in based on historic record, or to introduce a pot limit per square area to limit spatial squeeze, but this would need to be supported by proper enforcement

Closures are already being used for other species, such as bass. A closure in itself might help stocks recover but other measures are also required to combat overfishing (such as pot limits). Otherwise, fishermen would just buy more gear and the pressure will remain the same.

Any seasonal closure for the offshore fishery would need to be adopted by the EU as well to prevent discriminating between UK and European fishermen. The presence of international vessels is resulting spatial squeeze and gear conflict which is hard to manage based on the pressures offshore driving more vessels inshore. There needs to be an agreement that allows for static gear to be used because otherwise gear conflict with mobile vessels causes pot losses.

There are ~320 miles of Cornish coastline (1900sq miles in 6-12nm), making it a key region for impact from international vessels. Fishermen expected single access to 6 – 12nm which would have alleviated inshore pressure. A management strategy needs to be secured before end of TCA so that there is no uncertainty in the approach taken when new annual UK EU negotiations begin.

- *Gear modification*

Using inkwell or parlour pots results in different fishing efficiencies, and bigger pots are too efficient and catch everything. Using only inkwells would have prevented a lot of the pressure issues (and would allow species to recover over time) but at this stage switching back to inkwells would not provide enough crab to support livelihoods. There is a risk that pots may be altered to evade gear specific restrictions. These different efficiencies would need to be considered in a pot limitation system.

- *Quality*

The group discussed the difficulty in qualifying what soft shell crab is and the impossibility of legislating for it. There was agreement that merchants do not like to take soft shell crab as it is inferior quality and the crabs do not survive the export process. There is no regulation that says soft shell crab cannot be landed, as long as it is above the minimum landing size.

The group agreed that scrubbing berried crab is not really possible and doesn't happen in Cornwall. There also is not a market for crab as whelk bait in southern Cornwall.

Input controls

- *Managing the fishery by license*

Participants felt that the fishery currently feels like it is accessible to anyone, with more boats being built but no space for them to fish. This increased pressure on crab is causing displacement onto lobster stocks. The lobster stock is healthy at the moment but with the increased pressure this might not last long.

The group discussed the level at which fishing licences should be capped, and whether the current fishing effort is already too high. There will need to be a nationwide approach, rather than just in the south west, to avoid displacement to other areas.

- *Capping all unused shellfish permits and entitlements*

The group did not consider this to be a significant issue because of the amount of financial investment needed for gear as well as being able to afford the shellfish entitlement. The bigger issue is in relation those who are already fishing crab and the pressure it is currently putting on the stock.

- *Days at sea*

The current use of Kwd is leading to the exploitation of loopholes such as doing a double shift in a 24hour period. There was concern that tighter effort limits will cause displacement. Therefore the group felt that all species in the south west fishery management plans (FMPs) need to be considered simultaneously to ensure management does not have unintended consequences for other fisheries. To manage through days at sea, CPUE effort data is needed, but many fishermen are overreporting to secure a track record ahead of potential new restrictions.

- *Pot limit*

The group agreed that pot limits or other effort measures would potentially work if effectively enforced. Currently there are too many loopholes in management, but this could be reduced if management included counting the number of pots coming on board. All pots could be radio frequency identification (RFID) chipped to track the number of pots in the water. This would be a way around the difficulty of policing pot restrictions. The use of Succorfish technology as well as RFID chips would allow both the movement of the winch and the tagging of pots to be monitored at the same time. This would reduce the chances of finding loopholes. Succorfish alone is not an ideal solution because it only shows when the winch is working and does not count individual pots.

Pot limits could be based vessel size but pot type will also need to be considered as they contribute different levels of effort and could drive a move towards larger pots. Crew numbers should be irrelevant to a pot limit as it is too easy to manipulate. The group acknowledged that it would be difficult to decide

how many pots to allow per vessel given the variability in the number of pots currently in use. Management would need to start by capping the numbers is currently in use otherwise there will be resistance. Currently the absolute maximum is 2,800 pots in a 22m boat (the biggest boat in the Newlyn fleet). There was agreement that there does need to be a cap on the number of pots otherwise the pressure on the stock will continue to get worse. Technology like RFID tags would have to be used on all vessels regardless of size otherwise technological advances might allow smaller vessels to put out lots of pots, with the potential for significant impact on the stock.

There are some outliers – small vessels but with lots of pots – and these need to be targeted by management. Some <10m boats have more than 3,000 pots so implementing a consistent limit is bound to upset some people. This might also result in displacement of fishing effort into other species such as crawfish.

In addition to pot limits, the use of restrictions for the number of pots in a given area would help, as pot limits will not make any difference if they are all placed in the same area. Based on the Cefas management table, it was identified that the two main management approaches missing in the fishery are pot limits and closures.

Output controls

- *Managing the fishery by TAC*

The group was not keen on the use of TAC to manage the fishery as it drives up the number of pots to get a given quota and this has negative impacts on the stock. The experience from other UK quota species makes TAC seem extremely difficult to work with. Pot limits are considered more effective at managing the stock.

Other

- *Enforcement*

The group would welcome effective enforcement. The IFCA is under-resourced and as the cost of using the boat is one of the biggest expenses they cannot sufficiently police the fishery. The IFCA needs more resource to be able to enforce the rules. Even just their presence on the quayside to check catches when the boats come in would help (particularly if boats have more technology e.g. RFID tags on pots).

The IFCA also has no jurisdiction for landings from outside of 6nm so staff are limited in their ability to enforce compared to the MMO. There needs to be more consistent enforcement inshore and offshore. The group explained that MMO has more of a presence and is currently effective at enforcing effort so once management is agreed (with input from industry) the group would prefer that the MMO enforce it all (0 – 12nm). GDPR is causing unnecessary duplication of effort for reporting so streamlining via one management authority would be welcome. Management needs to be joined up to avoid loopholes.

It is important to monitor any new management and show fishermen what is or is not working, and then review this based on feedback. This requires fishermen to complete logs accurately to ensure management is based on accurate information. Anecdotal fishermen's information should also be captured as part of a co-management process.

There was a general agreement that management will inevitably result in short-term difficulties for some fishermen but this is important to guarantee long-term benefits.

- *Science*

Landing weights are correct and these can be verified by fishermen and merchants. However, fishermen can influence the effort data they submit by overclaiming the number pots for a given catch so they are not punished by more stringent management as a result of a worse historic catch-per-unit-effort (CPUE).

Some data is also not being consistently recorded, such as discard data, due to limited time while hauling to record data accurately as discards need to be thrown back straight away. This means there is no reliable information available for management.

The group agreed that access to data and feedback on where data is used for science and management would be useful.

- *Recreational fishing*

Recreational fisheries do have some impact on small scale fishermen, especially over summer, such as access to ground and rogue sales but currently there is no enforcement. The group felt that, at a minimum, recreational boats should be registered.

Online workshop, 5 May 2022

Technical Measures

- *Minimum landing size (MLS)*

There should be a consistent MLS everywhere for crab and lobster, inshore and offshore. Merchants should be liable if undersized individuals are found on their premises, but currently once crabs are in the tanks the MLS cannot be enforced.

- *Closed areas (spatial/temporal)*

A closed season would suit the smaller vessels as they are already limited by the weather. Generally, the 'super crabbers' leave their pots out all year round, which is negatively impacting the stock. Inshore/smaller boats tend to bring in pots over winter but there are costs to rent storage space.

The group suggested closing the area to larger vivier boats, which are now able to get much closer to the shore. These boats can travel further and in tougher conditions, so restricting them to offshore fishing would not prevent them fishing. This restriction would help even if just for a winter closed season like in Irish waters which are closed to >10s between December and March. Restricting access would give the stock a break, and the inshore fishermen can switch to line fishing instead.

There was a discussion on whether a closed season could be used in conjunction with a pot limit to reduce the pressure on the stock.

- *Gear modification*

There was a suggestion that vessels over a certain size could be limited through the type of pots they are permitted to use, for example using inkwells means they have to collect them daily. However, this would likely result in more pots on the ground.

- *Quality*

Currently there is no quality control, causing lots of low-quality, undersized or soft shell crab to be landed. These crab often die before they reach the French market, and fishermen are only paid for what survives. So this results in many more crab being removed from the sea than necessary and reduces breeding stock. The difficulty is defining what good quality crab is, and there was a suggestion that having cameras on the larger boats might help track the quality of crab being caught.

The group agreed that using crab for whelk bait should be banned.

Input controls

- *Pot limit*

There was a preference for pot limits to help reduce fishing effort and allow the stock to rebound. The suggestion was for 300 pots per man and that boats with 3,000 pots and two fishermen is unreasonable. They also agreed that pots should be brought up every day rather than being left on the ground for a week. The concern was how to police the pot limit and how to address the different efficiencies of the different pot types.

Other

- *Enforcement*

The group agreed that increase enforcement is needed, especially on the quality of crab landed. There were concerns about the lack of communication between the IFCA and MMO and the lack on follow up on issues raised to them. They felt that often fishermen were just told what they wanted to hear, for example, that a report of misbehaviour would be reviewed but nothing ever comes of it.

The group agreed that Defra's classification of vessel sizes needs updating as vessels are more efficient now. The also suggested that loopholes in legislation need to be closed otherwise they will be exploited.

Email submission

Technical Measures

- *Closed areas (spatial/temporal)*

A closed season is a welcome idea which should include the requirement to remove all pots and bring them ashore. November to February inclusive would follow the traditional pattern. March can be one of the best earning months for the inshore boats.

Have a size limit for vessels fishing within the (IFCA) six mile limit. This would perhaps be effective but could generate a new fleet designed to creep in just below the size limit.

The small boats operating from the coves have no option but to fish within a few miles of their home ports; they cannot move to another area. The question of licencing particular areas has been raised before; and most certainly a restricted entry into the `inside 3 mile` zone licenced by areas may work well; and would fit into the current MMO fishery area designations. With the advent of VMS monitoring this would be relatively easy to police and would perhaps be a way forward worthy of serious consideration.

- *Gear modification*

Restriction on the types of pots used would not address the problem of over-fishing and might penalise the smallest boats in the fleet who tend to use single, or very small strings, of large pots - which actually improves the safety of their operations.

Input controls

- *Pot limit*

Reducing the number of pots permitted would be easy to enforce on small boats, upon whom this would have the greatest financial impact. The large fleet has thousands of pots and it seems the boats work them as a pool so a limit is easily `got around`. The MMO`s policy of providing 80% grants for new pots has only exacerbated the pressure on the stocks and flies in the face of any idea of conservation.

Other

- *Enforcement*

There is overfishing of crab and lobster in Cornwall and the IFCA does not enforce the shellfish regulations within its 6 mile limit other than on vessels that are physically unable to fish outside six miles. The understanding is that the larger MLS within the six mile limit, along with the requirement to return berried females, are being totally ignored by larger operators.

Additional notes on the management of lobster

Brixham

- The group agreed that 90mm is a sensible MLS for lobsters.
- Voluntary v-notching of lobsters is considered a useful management tool, but lobster isn't as big a concern as the crab fishery. If anything, the lobster stock in the south west seems to be increasing, and this was attributed to the ban on landing berried lobster.

Newquay

- Lobster MLS should be increased to 90mm offshore to give them more time to breed

Newlyn

- Maximum landing size might be worth considering for lobster to keep a breeding stock on the ground, especially as larger lobsters are not often found in pots anyway. This wouldn't be as helpful for crab though.

Online

- There should be a consistent MLS everywhere lobster, inshore and offshore.