

BROWN CRAB
**WORKING
GROUP
REPORT**



Rialtas na hÉireann
Government of Ireland



Arna chomhchistiú ag
an Aontas Eorpach
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Chairman's Foreword:

In light of the recent decline observed in Irish brown crab stocks The Minister for Agriculture Food and the Marine asked Bord Iascaigh Mhara (BIM), to establish the BCWG to carry out a review of Irish brown crab fisheries and their management. The Minister further requested that the BCWG specifically identify measures that could be introduced to support the sustainability of brown crab stocks.

The Group carried out its work over two multi-day workshops held in Athlone at the end of 2024 with time between sessions to allow the industry participants the time to consult fully with their membership(s) between the two workshops. The workshop style ensured both continuity in the discussions and the time needed to both present and discuss all the available information that was needed to form the set of recommendations presented in this report.

As chair, I would again like to express my deepest thanks to all the members of the Brown Crab Working Group for their professional approach during the process. I also wish to acknowledge and thank officials in the Department of Agriculture, Food & the Marine (DAFM), the Marine Institute (MI), the Sea Fisheries Protection Agency (SFPA), and my colleagues in Bord Iascaigh Mhara (BIM) firstly for providing the requisite materials to ensure the discussions were fully informed and also for their expertise and input in the workshop discussions.

Rory Campbell

Chair of the Brown Crab Working Group

1. Introduction

The Brown Crab Working Group (BCWG) was established following a request from the Minister for Agriculture, Food and the Marine to Bord Iascaigh Mhara (BIM), in light of the recent decline observed in Irish brown crab stocks, to establish the BCWG to carry out a review of Irish brown crab fisheries and their management. Specifically the BCWG was asked to identify measures that could be introduced to support the sustainability of brown crab stocks. BIM were responsible for acting as Secretariat, Chair, organising the meetings of the Group and communicating the recommendations of the BCWG to the Minister in respect of proposed management measures for the sustainability of Irish brown crab fisheries.

1.1 State of Irish Brown Crab Stocks

Irish brown crab fisheries are extremely important not only for the Irish inshore fleet but also for a number of purpose-built larger vessels up to 24m in length. Annual landings in recent years have been 7,000-8,000 tonnes, down from a peak of 13,000 tonnes in 2004. Over the years 2021-2023, 200 vessels have recorded annual landings of over 10 tonnes, 240 vessels over 5 tonnes and 330 vessels over 1 tonne.

In the 2023 Shellfish Stocks and Fisheries Review (<https://inshoreforums.ie/wp-content/uploads/2019/02/Shellfish-Stock-and-Fisheries-Review-2023-for-web.pdf>), the Marine Institute notes that 'Standardised indices of stock abundance and a stock assessment, based on a production model, show a steep year on year decline on both landings per unit effort, discards per unit effort, increasing fishing mortality and declining biomass since 2014/2015 in the Malin Shelf fishery. These trends are also generally observed in other crab stocks off the Irish coast.'

'Advice based on the negative trends in stock indices or on the fishing mortality (F/F_{msy}) ratio¹, in the case of the Malin stock, all indicate the need to reduce fishing mortality. Corresponding landings at $F/F_{msy}=1$ for the Malin Shelf would be 3,900 tonnes (all fleets combined) or 4,500 tonnes (5,463 tonnes in 2022) using other harvest control rules for stocks where only relative estimates of fishing mortality and

¹ F - Fishing mortality, F_{msy} - The level of Fishing Mortality that keeps the stock at Maximum Sustainable Yield. If $F/F_{msy}=1$ the stock is being fished at a level that will maintain MSY, if F/F_{msy} is >1 the stock will continue to decline.

trends are available. Using the latter harvest rule landings for the south west coast would reduce to 960 tonnes (1,413 tonnes in 2022) and landings for the Celtic Sea would reduce to 632 tonnes (951 tonnes in 2022).⁷

1.2 Existing Management Measures

The management measures currently in place for brown crab include:

1. Landing Size: A minimum conservation reference size (MCRS)² of 140mm applies to brown crab taken by Irish sea-fishing boats in ICES Areas VI and VII (S.I. No. 26 of 2019 – Brown Crab (Conservation of Stocks) Regulations 2019).
2. Restriction on Landing Claws: While there is currently no limit on the volume of brown crab that can be landed into Ireland, EU legislation (Regulation (EU) 2019/1241) restricts the volume of brown crab claws that can be landed for conservation reasons.
 - i. When brown crab caught with pots or creels is being landed, no more than 1% (by weight) of the landing may consist of detached claws.
 - ii. When brown crab caught with any other fishing gear is being landed, the landing may not include more than 75 kg of detached crab claws.
3. Kilowatt Days³ Restrictions: There is an EU limit (Council Regulation (EC) No. 1415/2004) in the form of “kilowatt days” on the fishing effort Member States including Ireland can employ annually to catch brown crab and spider crab, scallops and demersal fish stocks in waters around Ireland (ICES areas V, VI and VII). However, there is not a direct restriction on fishing effort, as the number of pots in the brown crab fishery (the potential effort) and the number of pot hauls per annum is not currently limited.

1.3 Terms of Reference

The Terms of Reference for the Group asked the BCWG to review the management of brown crab fisheries in Ireland and make recommendations to the Minister for Agriculture, Food and the Marine on management options that will aim to support the future sustainability of these fisheries.

Taking into account the legal and policy frameworks governing fisheries management in Ireland the BCWG was asked to:

- Examine the effectiveness of current monitoring programmes for brown crab stocks;
- Analyse current scientific assessments of brown crab stocks in the Irish EEZ and in adjoining jurisdictions;
- Assess the effectiveness of national and EU management measures currently in place for brown crab fisheries, including those in other Member States and jurisdictions;
- Develop proposed management options that will support the future sustainability of brown crab fisheries in Ireland;
- Consider the impacts of proposed management options on related crustacean and whelk fisheries;
- Take account of potential constraints (legal, scientific, policy, enforcement, administrative etc.) on the implementation of proposed management options.

In developing its recommendations for management options, the BCWG was asked to:

- Consider the practicalities of implementing the options under consideration;
- Ensure that the options recommended:
 - Are compatible with the current legal and policy frameworks for managing sea fisheries in Ireland;
 - Can be managed and administered, where necessary, by the Department of Agriculture, Food and the Marine (DAFM) within existing resources;

- Can be monitored, assessed and enforced effectively by the marine agencies and control authorities within existing resources.

The BCWG was asked to strive for consensus when developing recommendations for the Minister. In instances where consensus could not be achieved, the BCWG recommendations were to note any dissenting views. Once the BCWG has submitted its recommendations, the Minister will determine which recommendations, if any, will be implemented. Depending on the nature of the recommendations, the Minister may choose to hold a public consultation prior to making his determination.

1.4 Membership & Structure

Following discussions between BIM and DAFM it was decided that in order to facilitate as broad a cross section of industry views as possible the membership should comprise single representatives from each of the Seafood Producer Organisations, the National Inshore Fisheries Forum, each of the Regional Inshore Fisheries Forums and the Irish Fish Processors and Exporters Association. The BCWG also included representatives from Bord Iascaigh Mhara (BIM), the Marine Institute (MI), the Sea-Fisheries Protection Authority (SFPA) and DAFM. BIM acted as Chair and Secretariat. A full list of members and their attendance is in Appendix 1.

2 MCRS Minimum Conservation Reference Size, formerly known as Minimum Landing Size (MLS). This is the minimum size a fish or crab must be before they can be legally landed. In the case of crab they must be returned to the sea alive if below this size. The MCRS for brown crab is set at a size where female crab have spawned a number of times before they are large enough to be landed.

3 Kilowatt day A measure of fishing effort calculated on the basis of the registered engine power of a vessel, measured in kilowatts, fishing for a day or part of a day.

2. Workshop 1, 23rd-25th September 2024

2.1 Method of working

The Group adopted a multi-day workshop style approach to carrying out its work in order to ensure continuity in the discussions. These discussions were chaired by BIM and supported by a professional facilitator. This resulted in two multi-day workshops being held. The sessions were structured as such so that industry participants had the time to consult fully with their membership(s) between the two workshops. Athlone was chosen as the venue for both workshops due to its central location in order to facilitate attendees travelling long distances from coastal areas.



2.2 Workshop Content

Day 1

The BCWG firstly considered all available scientific information on Irish brown crab stocks, including their composition, distribution, fisheries and status through a series of presentations. Information on European stocks was also presented. This showed that, just like Irish stocks, essentially all brown crab stocks in northwest Europe are showing significant and worrying declines. Presentations on the day included:

- i. Crab Stock structure; assessment units in North West Europe
- ii. Overview of data to support assessments of Irish stocks
- iii. Recent assessments of Irish Stocks
- iv. Comparison of Irish assessments and assessments in UK and France
- v. Profile of the Irish brown crab sector
- vi. Financial Performance of the Irish Crab Industry
- vii. Results of 2021 NW crab fishery survey

Day 2

Having been given a comprehensive picture of the issues facing Irish brown crab stocks the BCWG then moved on to consider management measures. The day started with a presentation on the principles behind the different types of management measures, a description of the management measures in place in the UK and in other EU Member States, the legal and

policy framework underpinning Irish brown crab management and the existing measures in place as well as the considerations that would need to be taken into account from a control and enforcement perspective. These presentations included:

- i. A generic assessment and management framework
- ii. Fisheries management - Input, output and technical measures
- iii. Overview of management measures in the UK and France
- iv. Frameworks for Irish Brown Crab Management
- v. Control Considerations

The morning session concluded with a facilitated discussion on the stock issues, an exploration of the matters within our control in Ireland that may be contributing to the state of the stock and an initial consideration of how these factors could be managed. The afternoon session then saw the Group break up into two working groups, each facilitated by a BIM expert who also acted as *rapporteur*, to consider potential management measures. This involved each idea put forward by group members being subjected to a rigorous interrogation with the pros, cons and possible impacts on other fisheries being comprehensively explored and recorded. The fisheries management principles underpinning these ideas are recorded in Appendix 2.

Day 3

The day began with the possible management measures developed by the two working groups being presented back to the Group

in plenary. This process demonstrated that many of the possible measures discussed by the two working groups were common to both groups, some being identical and others phrased or presented slightly differently. The potential measures were then distilled down into a collective list with associated pros, cons and possible secondary impacts. The working groups then reformed and discussed each measure in turn, further refining the language of each proposed measure and elaborating on the pros, cons and possible secondary impacts referenced. These discussions noted that a continuous decline in catch per unit effort has been seen in Irish crab stocks since 2015. This has been acknowledged as a serious situation for brown crab stocks and the industry and communities which depend on it. It was agreed by all at the BCWG that action needs to be taken in order to recover the stock. This could entail reducing the landings of brown crab until a sustainable stock level is reached.

3. Consultation process

All of the potential ways to manage the brown crab stocks were thoroughly discussed, with the advantages, disadvantages and secondary impacts on other fisheries comprehensively set out and recorded. Having been provided with the record of these discussions, the agenda and all presentations given, the industry representatives were then requested to revert to their respective organisations and consult with their members.

To further ensure that the work of the BCWG was publicised as widely as possible, BIM wrote to all owners of vessels that might fish crab (including boats in the <18m polyvalent general, polyvalent potting and >18m vivier fleet segments) informing them of the work of the BCWG and directing them to the inshoreforums.ie website where the agenda and all presentations had been posted at:

<https://inshoreforums.ie/2024/10/07/1st-meeting-of-bcwg-23rd-25th-september-2024/>

They were also encouraged to engage with their representatives on the proposals being discussed. This was specifically facilitated by the fact that all organisations represented on the BCWG held consultation meetings with their respective members immediately after the first workshop to discuss the potential management measures and develop feedback on each using a template provided by BIM for that purpose. As a result feedback on the potential measures was received from the majority of the industry bodies represented on the BCWG. This was collated prior to the second meeting of the BCWG and was presented to the members at the start of that meeting in order to begin discussions on preferred management options.



4. Workshop 2, 23rd-24th October 2024

The workshop began with a recap of the previous meeting and the Terms of Reference followed by presentation of the feedback received on the various measures proposed for consideration at the first workshop.

After the presentation of feedback there was an additional presentation on the principles underlying the different types of management measures so that members were fully appraised as to the mechanisms by which they operated. All potential management measures, including technical measures, input controls and output controls, were then comprehensively considered in turn over the course of the remaining day and a half of the workshop. For each measure the pros and cons were again laid out with a particular focus on the practicality of introducing the measures from the viewpoint of the fishers. The discussions on each measure also considered the policy implications, impacts from a management and implementation perspective, the legal instruments (Statutory Instruments, etc.) required to bring measures into force, and the SFPA views from a control and enforcement standpoint and as the authority who would need to enforce the various measures in question.

The discussions on potential measures included the following points:

1. **Increase Minimum Conservation Reference Size (MCRS)** – Increasing the MCRS to 150mm for ICES Areas VI & VII would make Ireland's approach consistent with the UK, NI & Scotland, as this MCRS has been introduced by Scotland in Area VI, and England and Wales have introduced it in Area VII. The only outlier is France (in respect of Area VII) which has shellfish rights in a portion of the Irish 6-12 nautical mile (nm) zone. However, it is understood that the French offshore vivier fishery in Area VII is limited to a single vessel which does not fish in the areas fished by Irish vessels, therefore Irish vessels should not be disadvantaged by this proposal.

An implication identified for Irish fishers relates to those fishing close inshore where a higher portion of the catch than the average would not be over 150mm. For the fleet overall it is estimated that landings could decline 13-19% in the first year post introduction of such a measure. This should decrease over time as crabs grow to reach the new MCRS. No enforcement issues were anticipated in relation to the above, but it was noted that new measuring gauges would be required.

The measure would need to be introduced through an S.I., however if Ireland wished to apply the measure to French vessels in the 6-12nm zone this would require additional negotiation as set out in the Common Fisheries Policy (CFP). There was unanimous support for this measure from the industry representatives.

The State representatives noted that this measure should be achievable within existing resources.

2. **Ban on landing berried crab (crabs carrying eggs)** – On initial discussion the industry representatives were in support of introducing this measure. However, as the discussion progressed it became apparent that female crab could extrude eggs as a result of the stress of capture and storage, and enforcement of the measure would not be possible in practice. As a result, it was decided to not consider the measure further.
3. **Restrict clawing** – EU Regulations currently limit the landing of detached crab claws in two ways:
 - a. When brown crab caught with pots or creels is being landed, no more than 1% (by weight) of the landing may consist of detached claws.
 - b. When brown crab caught with any other fishing gear is being landed, the landing may not include more than 75 kg of detached crab claws.

The current legislation, whilst providing for the landing of small quantities of claws, does not protect against poor practices which can add mortality pressure to the brown crab stock. The legislation, as it stands, does not prevent the clawing of crab on the pier side and discarding the bodies which can result in undersize, berried and soft crab being removed from the population. Had these crab been returned to the sea they could then be recaptured at a later juncture in an enhanced and more valuable condition.

The clawing of undersize crab is a particular concern as this undermines the effect of the MCRS and there is currently no minimum size set for claws that could be used to prevent this. It was also noted that significant mortality can result if crabs have their claws removed and a

multinational EU funded project also found that the practice posed a reputational risk to the fishery. The 75kg trip limit for netters is also problematic as it could potentially encourage poor practices. The industry representatives all agreed that clawing needed to be restricted further to eliminate the risks it posed to both the stock and the reputation of the fishery.

After some further discussion it was suggested that in order to eliminate the risk of clawing undermining the MCRS the claw size should be regulated as this is directly proportional to carapace width. The MI confirmed this was possible but advised that the size of the male claw should be used as male claws are larger than their female counterparts and that the claw size limit should be based on that of a male crab of 150mm carapace width to reflect any new proposed MCRS in (1) above. The MI should be formally consulted by DAFM to determine the precise minimum claw size that could be adopted. The SFPA advised that this measure could be enforced without any great difficulty once a size had been set but that new gauges would be needed. The minimum claw size should be applied to landings of detached claws only and should not apply to claws processed/detached by processors with a valid market outlet for claws.

Discussion then turned to trip limits for landing detached claws. Regulation (EU) 2019/1241 sets a 75kg per trip limit for vessels carrying gears other than pots. The MI presented data showing that over 95% of all vessels using all gears logging crab claws in their landings were landing under 30kg of claws per trip. As a result, the industry representatives then agreed to recommend the introduction of a 30kg per trip limit for all vessels, whether carrying pots or other fishing gears. The

4. **Restrict landing of soft crab** – Industry representatives acknowledged that landing soft crab resulted in a poor product for consumers, potentially damaging the reputation of the Irish brown crab sector. It was also conceded that the fishery was losing potential value as fishers only needed to wait a month or two before the same crab would be fully meated and far more valuable. The reasons for landing soft crab were explored including inadequate crew training in grading crab and the use of such crab as bait in the whelk fishery.

A number of non legislative approaches to the issue were then discussed including training, changes to processors grading processes and use of alternative bait sources. The definition of 'soft' crab was then considered and the legislation in force elsewhere such as NI which then led to the issue of defining 'soft' crab. It was agreed by industry representatives that at present it could not be objectively defined however there was work underway in the UK using a durometer which might be of relevance. After considerable further discussion the industry representatives agreed that such a measure should not be introduced at the current time, however developments and approaches being used in other jurisdictions should be investigated to see if this measure could be recommended for introduction in the future. The State representatives were also supportive of this approach.

5. **Escape Gaps** – The industry representatives were broadly supportive of the concept of escape gaps for undersize crab in pots however there were many questions about their practicality. The MI reported on past trials stating that in solely brown crab fisheries appropriately sized rectangular escape gaps could be used to effectively release 30-40% of juvenile crab, reducing crew sorting times without losing legal sized lobster. However, the matter becomes more complex in fisheries where velvet crabs can make up significant portions of the catch as due to their small size they could mostly be lost. Further, due to the complexities involved, it was agreed that a recommendation to legislate for their introduction should not be brought forward by the group at this time. Industry representatives proposed that the installation of escape gaps should continue to be incentivised through the use of grant aid.
6. **Seasonal closures** – A wide variety of views were expressed by the group on this potential measure. In order to be effective at reducing fishing effort any seasonal closure would have to take place at a time when fishers would normally be fishing. Times when quality, price or catch rates were poor or during moulting season in June/July when there is a high rate of soft crab amongst fully meated roe crab could be effective periods for potential closures. However, any such closure could also result in severe market disruption as processors and buyers need ongoing supply to maintain market access and keep processing lines running.

Consideration would also need to be given to the potential displacement of fishing effort to other species such as lobster or, if closures for brown crab were regionally

based, other brown crab stocks. In a practical sense, seasonal closures would therefore need to be regionally staggered to maintain market supply. Some industry representatives were of the view that fishing effort was already limited by weather and that the issue should rather be managed through addressing quality and the landing of soft crab. There would also be significant challenges with respect to managing and regulating any seasonal closure(s) from a State perspective.

In conclusion, the group considered that the issues surrounding seasonal closures, particularly those relating to markets, were too complex to come to a definitive recommendation on this measure. Further in-depth consideration would be required before making any recommendations on the possibility of introducing such closures in the future.

7. **Managed Access** – There was a divergent range of opinions expressed on this potential measure. Industry representatives were against ringfencing as is currently the practice in some Irish fisheries. However, should other management measures prove ineffective, and a new policy model were developed, there could potentially be support from fishers for such an approach. While the MI and BIM suggested alternative models outside the current ringfencing mechanisms it wasn't possible to explore the subject in sufficient depth in the time available at the workshop. DAFM and the SFPA noted that any change in the current management arrangements would have very significant potential resource implications from a management and enforcement perspective. Industry representatives indicated that considerably more consultation and engagement

with the State representatives would be required if such a measure is to be considered in the future.

8. **Effort Limits** – Currently the brown crab fishery is managed under the 'Western Waters Regulation' Council Regulation 1415/2004 through the use of fishing effort limits expressed as kilowatt days (kWdays). This sees effort by vessels over 15m capped in Area VI and effort by vessels over 10m capped in the Biologically Sensitive Area (BSA) in Area VII. The industry and state representatives noted that kWdays were widely regarded as being ineffective at managing effort in static gear fisheries due to the fact that catching power in vessels using static gear is not related to the power (kW) of the vessel unlike trawl fisheries. The industry representatives advised that until such time as Council Regulation 1415/2004 could be revised, which is outside the remit of the BCWG, there was little point in seeking to utilise effort limits more widely as a management measure.
9. **Pot Limits** – There was general support amongst industry representatives for this measure but there were also serious concerns raised about the practicality of introducing it at the current time. Pot numbers have been rising, and in many cases increasing to compensate for reduced catch rates but also to capitalise on circumstances where catch rates had improved. The high numbers of pots are also negatively impacting lobster fishers as the reducing crab catch rates sees pots being shifted to lobster in response.

There was an acceptance amongst industry representatives that pot limits were being used as a management tool in some crustacean fisheries in other jurisdictions. DAFM and the SFPA expressed

concerns about the management, administrative and enforcement burdens that the introduction of a pot limit measure could bring about. The MI was of the view that a number of technological solutions could assist in relation to its effective enforcement.

The Group agreed that more consideration, along with the examination of available research, would be required before such a management measure could be considered in the context of the Irish brown crab fishery.

10. **Pot Types** – This measure was proposed primarily due to concerns about the increasing use of high retention pots such as parlour pots that still fish effectively even when only hauled once a week rather than every 48-72hrs. The MI stated that they had some data on catch retention versus soak time however more research was required. There was some discussion about the use of very inefficient pots such as top entrance pots for crayfish which need to be hauled every 12 hours.

In conclusion the industry representatives indicated that this measure would have relevance as part of any discussion on the introduction of overall pot limits, but at this time the measure was not one that should be carried forward.

11. **Output Controls/Total Allowable Catch (TAC)** – There was a blanket opposition amongst industry representatives to the introduction of a TAC at this time. Notwithstanding this, there was constructive discussion on possible models, such as the one used in the Dundalk Cackle Fishery. Potential benefits such as encouraging fishers to return alive poor quality soft crab to the sea were also discussed.

A major concern for industry was the lack of a time series of hard data on catches for under 10m vessels that might be used to establish track record should a TAC be introduced. In addition some negative experiences of TACs in other fisheries were raised. There would also be significant resource implications for the State and as a result the measure could not be recommended for further consideration at this time.

12. **Area-based measures** – All members accepted that to be effective measures such as MCRS or claw size needed to be applied at a national level. However other somewhat less impactful measures such as pot limits, fishing effort, seasonal closures etc could potentially be implemented on a regional basis to reflect differences in the brown crab stocks or regional fishing practices. Notwithstanding this the MI queried whether there were sufficient differences between the Irish brown crab stocks/fisheries to merit such an approach. The SFPA were strongly of the opinion that there was a serious risk of misreporting if regional measures were introduced and enforcement could be very challenging. DAFM were also concerned about the risk of multiple regional management regimes potentially creating a confusing regulatory landscape. It was recommended by industry representatives that the area-based approach should be kept on the table while other measures are being progressed and maintained as a potential future option should the evidence show the approach may be necessary.
13. **All members of the BCWG considered that the effective management of Irish brown crab fisheries need to be properly supported by scientific evidence.** The

industry representatives were strongly of the view that data collection required to develop an improved scientific assessment needed to be strengthened and to that end the industry representatives of the BCWG supported:

- i. The collection of catch/landings/effort data from as many boats as possible using a simplified app.
- ii. Increasing the numbers of vessels in the Sentinel Vessel Programme – however, budget limitations were raised as an issue.
- iii. The development of a recruitment index.
- iv. An increase in port sampling – size distribution.
- v. The collection of industry fishing diaries – position, catch per unit effort (CPUE), landings per unit effort (LPUE), soak time.
- vi. The introduction of incentivised data collection such as an expansion of the Sentinel Vessel Programme and directed stock surveys.

14. **The BCWG noted that for a significant number of the potential management measures discussed there was insufficient information available as to their potential impact in the context of managing Irish brown crab stocks.** Due to the complexity of such measures requiring further examination and the need to monitor the effectiveness of any proposed measures and to examine the future management of Irish brown crab fisheries a mechanism

would need to be established to work over the medium to long term with a similar membership to that of the BCWG and that such an entity should be requested to:

- i. Monitoring the effect of the implementation of any management changes – this is likely to be a number of years in the case of MCRS
- ii. Making recommendations on data collection for Irish brown crab stocks and other impacted stocks such as lobster
- iii. Developing a Fishery Management Framework for Irish brown crab stocks
- iv. In the context of developing such a Framework, exploring other potential management measures or other relevant issues pertaining to the Irish brown crab sector
- v. Making further recommendations to the Minister in light of the above.

Summary points of the feedback received prior to the second workshop and discussions described above were posted on the inshoreforums.ie website at:

<https://inshoreforums.ie/2024/11/15/2nd-meeting-of-bcwg-23rd-and-24th-october-2024/> so that BCWG members and those that they represent could consider them further.

5. Recommendations

The BCWG makes the following recommendations:

Recommendation 1.

Increase the minimum conservation reference size (MCRS) of brown crab to 150mm - to apply to all Irish vessels operating in ICES areas VI and VII.

This recommendation was made with consensus across all of the BCWG's industry representatives and with no dissenting views. This recommendation would make Ireland's regime consistent with the UK MCRS regulations in these ICES areas. Irish brown crab fisheries in these areas are shared with the United Kingdom (Area VI & VII) and France (Area VII).

The BCWG recognises that this proposed increase in MCRS may negatively impact some vessels which operate exclusively inshore and, for a certain period, may reduce landings across the Irish brown crab catching fleet.

Recommendation 2.

Limit the landing of brown crab claws by restricting Irish vessels to landing no more than 30kg of claws per trip and introducing a minimum claw size to prevent the clawing of brown crab under the MCRS.

This recommendation was made by consensus across all the BCWG's industry representatives and with no dissenting views noted. This recommendation would be in addition to existing EU legislation regarding the landing of brown crab claws and it would strengthen those measures, particularly for vessels not involved in pot fisheries. This proposal would still allow for small quantities of claws to be landed, which is of importance to some inshore fishers who find that getting their whole product to market can be challenging.

The introduction of a minimum claw size would help to protect undersize crab from being clawed by providing an enforceable measure to prevent this. This measure would also support the recommendation to increase the overall MCRS of brown crab to 150mm and should be based on the claw size of 150mm male crab. The minimum claw size should be applied to landings of detached claws only and should not apply to claws processed/detached by processors with a valid market outlet for claws.



6. Concerns Raised by Industry

Throughout the discussions held at the BCMG, the industry representatives raised concerns that any new management measures introduced to the fishery may have a negative effect on the economic performance of the industry, particularly if any of those new measures reduced catches or limited fishing opportunities. The industry representatives were strongly of the view that if new management measures were introduced that fishers would need some level of support. However supports, generalised or otherwise, fell outside the terms of reference of the BCWG and given the complexity of the subject matter and the time limitations it was not possible to discuss these in detail at the time. However, a number of potential support options that were suggested by industry to support the introduction of any new management measures have been included in this report and are summarised below:

Specific Measures

- iii. Improved marketing of crab – consumer education, accessible formats for time poor consumers such as pre-packed white meat etc. Potential for the increased use of spider crab should be explored
- iv. Encourage processors to retrieve catch from smaller ports
- v. Training on landing quality product

Other Measures

- vi. Other fishing opportunities, if vessels are fishing other stocks they will not be fishing crab, thus reducing effort.
- vii. Enforcement of recreational potting restrictions

Generalised Supports

- i. Tie-up Scheme for crab fishers – temporary cessation of fishing
- ii. Retirement Scheme - incentivise the retirement of older vessel owners and passing on their fishing enterprise to younger fishers -

DAFM and the State agencies noted that any consideration of the suggestions put forward by industry will need to have regard to the current regulatory, policy and enforcement landscape. DAFM also noted that it is a matter for the Minister to determine which recommendations may be implemented and may also seek a public consultation prior to making a determination on the next steps. It was also noted that engagement in relation to such supports could only take place once the Minister had made such a determination, and the nature of the measures and any impacts could be assessed.

Recommendation 3.

Establishment of a longer term mechanism to monitor and explore the future management of Irish brown crab fisheries

The BCWG recommends the establishment of a mechanism to continue the work of the BCWG by monitoring the effectiveness of any new management measures introduced. It is further recommended that the entity be given similar terms of reference to those of the BCWG and that its membership is fully reflective of the brown crab value chain in Ireland.

The entity should also be requested to identify and propose a suitable management framework for Irish brown crab stocks to the Minister and

to explore and review other potential management measures or any other relevant issues pertaining to the Irish brown crab sector. As outlined above, the BCWG explored a considerable number of management options in addition to those recommended. A number of these were considered to have potential, as additional or alternative management measures, should the recommended measures not prove to be sufficient. The proposed entity would allow for considered discussion of additional measures to support the brown crab sector as deemed appropriate. It is recommended that the entity would meet at least once a year and would report to the Minister annually or more regularly as required.

Appendix 1 Representatives that participated in meetings of the Brown Crab Working Group

Organisation	Representative Meeting 1	Representative Meeting 2
Irish Islands Marine Resource Organisation	Enda Conneely	Enda Conneely
National Inshore Fishermen's Association	Kevin Byrne	Michael Desmond
National Inshore Fishermen's Forum	Eamon Dixon	Eamon Dixon
Northwest Regional Inshore Fishermen's Forum	Chris Harte	Chris Harte
North Regional Inshore Fishermen's Forum	John Menarry	John Menarry
Northeast Regional Inshore Fishermen's Forum	Patrick Hughes	Patrick Hughes
Southeast Regional Inshore Fishermen's Forum	Tom Roche	Did not attend
Southwest Regional Inshore Fishermen's Forum	Edward Moore	Edward Moore
West Regional Inshore Fishermen's Forum	Michael O'Connell	Michael O'Connell
Irish Fish Processors and Exporters Association	Yvonne McCarron	Yvonne McCarron
Irish Fish Producers Organisation	Did not attend	Did not attend
Irish South and West Fish Producers Organisation	Patrick Murphy (Day 3)	Did not attend
Killybegs Fishermen's Organisation	Peter McBride	Hugh McBride
Irish South and East Fish Producers Organisation	Peter Lynch	Peter Lynch

Organisation	Representative Meeting 1	Representative Meeting 2
Bord Iascaigh Mhara	Rory Campbell (Chair) Ian Lawler Vera O'Donovan Emmet Jackson	Rory Campbell (Chair) Ian Lawler
Sea Fisheries Protection Authority	Susan Coughlan	Susan Coughlan
Marine Institute	Oliver Tully Guillermo Martin Liese Carlton	Oliver Tully Guillermo Martin Liese Carlton
Department of Agriculture, Food and the Marine	Suzanne Brennan Geraldine O'Donovan Nicholas Hoffman	Suzanne Brennan Geraldine O'Donovan Nicholas Hoffman
Independent Facilitator	Karen Coleman	Karen Coleman

Appendix 2 Fisheries Management Measures

The primary aim in fisheries management is to manage the amount of a stock being removed by fishing activities while ensuring that juveniles are protected so that they can mature and spawn and a sufficient proportion of the stock is given an opportunity to reproduce and replenish the stock. The amount of stock removed by fishing is referred to as Fishing Mortality – F which is defined as the proportion of the stock removed by fishing activity in a year. The challenge that is usually presented to fisheries managers is to keep F at a level which ensures that the stock is maintained at Maximum Sustainable Yield (MSY). This usually entails reducing F to a level that is consistent with maintaining the stock at MSY which is referred to as F_{msy} . If the ratio of F/F_{msy} is >1 the stock will continue to decline. There are three approaches that can be taken to reduce fishing mortality either on their own or in combination:

- 1) Catches could be reduced by bringing in Technical Measures, meaning less of the stock would meet the criteria for landing or fishing gear is deliberately made less efficient e.g. increases in MCRS, no berried crab, no soft crab, gear restrictions etc.
- 2) Decrease catches by reducing the amount of fishing effort e.g. time spent fishing through seasonal closures or effort limitations, limits on the numbers of pots that can be fished etc. These are referred to as Input Controls and may be used in combination with Technical Measures and/or Output Controls
- 3) Reducing catches directly through introducing a Total Allowable Catch (TAC). This is referred to as Output Controls and may also be used in combination with Technical Measures and/or Input Controls

Technical Measures

These measures would reduce the amount of crab landed. Fishing mortality should decrease, while the value increases. Options include:

- Increase Minimum Conservation Reference Size (MCRS)
- Ban landing of egg bearing or 'berried' females
- Ban landing of soft crab
- Escape gaps
- Restrict clawing

Input Controls

- Reduce the amount fished

There are a number of ways to do this:

Restrict fishing time – different methods include:

- Limiting days at sea,
- Closed seasons.

Limit catching capacity through:

- Pot numbers –with effective gear marking and pot tags
- Pot type – with similar factors as pot numbers,

The aim would be to reduce catch and fishing mortality.

Output Controls

- Reduce the amount caught

This could be implemented through a TAC (Total Allowable Catch), set for the stock which would directly reduce the quantities of the stock that could be landed.



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