Australian Government
Australian Fisheries Management Authority

Scallop Resource Assessment Group (ScallopRAG) Meeting 39

Meeting minutes

3 March 2022

09:03-17:12

Mantra Tullamarine/ Microsoft Teams

Australian Government
Australian Fisheries Management Authority

Bass Strait Central Zone Scallop Fishery Resource Assessment Group (ScallopRAG)

Meeting 39 – 3 March 2022

Agenda

Time (AEDT): 09:00 – 17:30
Location: Mantra Tullermarine/ Microsoft Teams
Chair Name: Brendan Kelaher

Approximate time	Item	Purpose	Lead presenter
09:00 (45 min)	**Agenda item 1. Preliminaries**		
	1.1 Welcome and apologies	For action	Chair
	1.2 Declaration of interests	For action	Chair
	1.3 Adoption of agenda	For action	Chair
	1.4 Minutes from previous meeting	For noting	Chair
	1.5 Actions arising from previous meetings	For noting	Executive officer
09:45 (30 min)	**Agenda item 2. Fishery Updates**		
	2.1 AFMA Management	Taken as read	AFMA member
	2.2 Industry	Taken as read	Industry members
	2.3 Economic	Taken as read	Economic member
	2.4 Research	Taken as read	Scientific member
10:15 (15 min)	**Morning Tea**		
10:30 (60 min)	**Agenda item 3. 2022 Biomass Survey Bed Prioritisation**	For advice	AFMA member
11:30 (30 min)	**Agenda item 4. Harvest Strategy Review**	For advice	Invited presenters
12:00 (45 min)	**Lunch**		
12:45 (120 min)	**Agenda item 4. Harvest Strategy Review (continued)**	For advice	AFMA member
14:55 (15 min)	**Afternoon Tea**		
15:00 (60 min)	**Agenda item 4. Harvest Strategy Review (continued)**	For advice	AFMA member
16:00 (60 min)	**Agenda item 5. Five Year Strategic Research Plan**	For advice	AFMA member
17:00 (30 min)	**Agenda Item 6. BSSIA project update**	For advice	BSSIA executive officer
17:30 **End of meeting**			

The Chair opened the meeting at 09:03

Agenda Item 1. Preliminaries

1.1 Welcome and apologies

1. Professor Brendan Kelaher, the Chair, welcomed members and observers to the meeting and made an Acknowledgement of Country paying our respects to this country's First People and Traditional Custodians of the land throughout Australia. Acknowledging Australia's Traditional Custodians of Country and recognising their continued connection to land, waters and community. Paying our respects to them and their cultures and to Elders past present and emerging.

2. The Scallop Resource Assessment Group (the RAG) members noted the Acknowledgement of Country, that the meeting was being recorded and commenced proceedings.

3. **Membership**

Brendan Kelaher	Chair
Jayson Semmens	Scientific member
Mervi Kangas	Scientific member
Julian Morison	Economic member
Stuart Richey	Industry member
John Cull	Industry member
Lara Ainley	AFMA member
Heather Johnston	Executive officer

4. **Invited Participants**

Don Bromhead	ABARES
Andrew Sullivan	Industry
Matt Koopman	Fishwell Consulting

5. **Observers**

Dan Corrie	AFMA

1.2 Declarations of interest

6. The RAG members followed the conflict of interest declarations as outlined in *Fisheries Administration Paper 12 (FAP12) – Resource Assessment Groups*. Members and participants reviewed and updated the Declarations of Interest included at Attachment A.

7. John Cull, Stuart Richey and Andrew Sullivan declared a potential conflict with Agenda Item 3 '2022 Harvest Strategy Review'. The members and invited participants with the potential conflict left the meeting while the RAG considered their interest and how they should be managed.

8. The RAG agreed that John Cull, Stuart Richey and Andrew Sullivan could be part of the discussion but should not participate in the forming of the RAG recommendation for Agenda Item 3.

9. Andrew Sullivan, Stuart Richey, John Cull and Matt Koopman declared a potential conflict with Agenda Item 6 'BSSIA project update'. Andrew Sullivan, Stuart Richey, John Cull and Matt Koopman left the meeting while the RAG considered their interest and how they should be managed.

10. The RAG agreed that Andrew Sullivan, Stuart Richey, John Cull and Matt Koopman could be part of the discussion but should not participate in the forming of the RAG recommendation for Agenda Item 6.

1.2 Adoption of agenda

11. The RAG adopted the agenda as final.

1.3 Minutes of previous meeting

12. The RAG noted the final minutes of the ScallopRAG 38 meeting on 15 June 2021 are available on the AFMA website ('Fisheries Management' – 'Committees' - 'Resource Assessment Groups' - 'Bass Strait Central Zone Scallop Fishery Resource Assessment Group').

1.4 Actions arising from previous meetings

13. The RAG there was no action items from previous meetings.

Agenda Item 2 – Fishery update

14. The Chair introduced the Agenda Item and asked the RAG to note the AFMA Management, state fishery, industry, economic and research updates for the Bass Strait Central Zone Scallop Fishery (BSCZSF).

2.1 AFMA Management

15. The AFMA member provided an update on matters relevant to the management of the BSCZSF:

- 60 per cent (2,330 t) of the 3,905 t commercial scallop total allowable catch (TAC) was caught by ten boats in 2021. 40 kg of doughboy scallop were caught and no protected species interactions were reported in 2021.
- In the Australian Bureau of Agriculture and Resource Economic (ABARES) 2021 Fishery Status Report, commercial scallops were listed as not subject to overfishing and not overfished. The report noted:
    - There was a large and stable biomass of scallops identified in western Bass Strait.
    - The TAC and catch in 2020 were relatively small compared to the estimated biomass and, hence, the net economic return (NER) to the fishery is likely to be positive.
    - Information from recent surveys indicate that the stock is healthy and catches are sustainable.
- Beach Energy completed the Prion 3D marine Seismic Survey between November and December 2021. A Before and After Control Impact (BACI) survey is being conducted, with the before phase undertaken in August 2021 and the after phase expected to be undertaken in April 2022.
- Dan Corrie has commenced in the role of Senior Manager, Demersal and Midwater Fisheries, and will continue to be based in Lakes Entrance.

2.2 State fisheries

16. The RAG industry members provided an update on the Victorian scallop (ocean) fishery:

- The Victorian Fisheries Authority (VFA) undertook a biomass survey in late 2021 to enable management decisions for the 2022 fishing season.
- Consultation on the 2022/23 total allowable commercial catch has now concluded and VFA are expected to formalise their decision soon.
- The Victorian scallop (ocean) fishery showed good signs of recruitment and catches in 2021.

17. The RAG industry members provided an update on the Tasmanian scallop fishery:

- The 2021 Tasmanian scallop season opened on 1 September with a TAC set at 1,495 t.

- Following the season opening there was reports of poor quality, dying or dead scallops and no fishing occurred after 8 September.

2.3 Industry

18. The RAG industry members provided an update on matters relevant to the BSCZSF

- A large portion of the catch came from the Flinders Island region, while this region was higher quality to King Island, it had lower catch rates.
- The lower catch rates and the total catch, lower than previous season, meant that there are limited scallops in storage at the end of the 2021 fishing season.
- A market for scallops frozen in shell was developed to fill the Queensland market.
- The King Island region came into condition at the end of the season.
- There was a price increase midway through the season.

2.4 Economic

19. The RAG economic member noted according to the ABARES status report there had been a drop in the GVP in 2020.

20. The RAG noted that the update to the RAG on the project *'Informing the Bass Strait Central Zone Scallop Fishery Harvest Strategy and TAC setting process with economic data and MEY proxies'* will be provide at Agenda Item 4.1.

2.5 Research

21. The RAG scientific members provided an update:

- The Western Australian Shark Bay scallop fishery 2021/22 season is underway with fishing both in northern Shark Bay and Denham Sound, with approximately 500 – 750 t (whole weight) caught.
- The Western Australian Abrolhos Island 2021 season saw approximately 625 t (whole weight) caught. The November 2021 fishery independent survey indicated low abundance and the fishery will be closed in 2022. The February 2022 survey indicated moderate recruitment and if there is survival through to November 2022 it is expected that the fishery will open in 2023.
- An underwater video survey has started, it will be conducted in both Tasmanian and Commonwealth waters. IMAS are seeking feedback from stakeholders on how underwater video surveys can be used in the future.

Agenda Item 3 – 2022 Biomass Survey Bed Prioritisation

22. The AFMA Member introduced the Agenda Item and asked the RAG to consider the BSCZSF Industry Management Committee (Co-Management Committee) advice and provide advice on which scallop beds should be surveyed in 2022 biomass survey (the 2022 survey).

23. The RAG noted the following background:

- In accordance with the BSCZSF Harvest Strategy, the Total Allowable Catch (TAC) for commercial scallops will not be increased above 150 t unless a biomass estimate, as determined by the biomass survey, is able to identify an area or scallop bed containing at least 1,500 t biomass of high density scallops with a minimum size of 85 mm.
- The objectives of the annual biomass survey are to:
    - coordinate a fishery survey to measure the size distribution and calculate biomass estimates to assess the potential for commercial catch rates in the BSCZSF; and

- inform the assessment of fishery impacts on bycatch.

- The RAG and Co-Management Committee are responsible for identifying and prioritising survey beds each year. The process is informed by the proposed scallop survey design which includes:
  - previous survey areas;
  - recent commercial catches (confidential); and
  - a list of proposed beds to survey.

24. The RAG noted the following key points from the Co-Management Committee:

- The Co-Management Committee met on Friday 25 February 2022 to provide advice on which scallop beds to survey in 2022, considering the proposed scallop survey design (without confidential information).
- The Co-Management Committee noted that the Three Hummocks North and South had been surveyed by the BSSIA project in November 2021 and their preference was to not survey this area again in 2022, however if it meant that it could be considered as part of the biomass estimate and formal closures for the 2022 fishing season then it should be surveyed.
- The Committee recommended:
  - KI - King Island 7
  - KI – King Island 9
  - KI – King Island 10
  - KI – Blue Dot South East
  - AB – The Hill North
  - AB – 5 Hours
  - KI – Three Hummock south
  - KI – Three Hummock north
  - FI – FI bed
  - FI – North of Babel
  - FI – the Wreck A (previously Foochow A)
  - FI – the Wreck B (previously Foochow B)

25. Dr Koopman presented the proposed 2022 survey design, the RAG noted the following:

- 71.7 per cent (1,731 t) of the 2,313 t logbook reported catch in 2021 was taken from outside of 2021 surveyed beds.
- 68 per cent (1,580 t) of the 2,313 t logbook reported catch in 2021 was taken from eastern bass strait and the remaining 32 per cent (733 t) was taken in western bass strait.
- The exploratory marks provided by industry in 2022 align with the major areas of catch in 2021.
- The FI – the Wreck was split into two to allow for more flexibility in management decisions.

26. The RAG made the following key points:

- Industry members requested that the Three Hummocks North and South aren't surveyed as an industry survey under the BSSIA FRDC project was conducted in this area in November 2021 and a biomass estimate was obtained.
- The RAG discussed whether the biomass estimate from the November 2021 survey would contribute to the biomass estimates and management decisions for the 2022 season. While they recognised the value in the survey, that it will build capacity in industry in the future and that the data was valid, the RAGs opinion was that it would not contribute to the 2022 season however it would be recognised in the discussions where possible.
- In accordance with the principles for prioritising survey beds, the RAG recognised that it was not necessary to survey a bed each year to continue a time series. Noting this, the RAG discussed that as the Flinders Island bed (FI) was unlikely to be fished in 2022, due to more economically viable beds being available in the Flinders Island region and the presence of small scallops, it would be appropriate to not survey the bed in 2022. KI-BDE was proposed as an alternative bed to survey in order to maintain this time series and it is in a region where fishing is likely to occur in 2022, allowing for more flexibility in management decisions.
- The RAG noted the high biomass levels in recent years and considered that there was an opportunity to not survey 12 beds but allow one of the survey boats to do exploratory fishing in the Flinders Island region as an alternative. The RAG noted that with ten beds being surveyed there would still be sufficient information to allow a TAC and closures to be determined.
- There is an opportunity for the FRDC project '*Building industry capacity to lead co-management initiatives that maximise economic returns to the Bass Strait Central Zone Scallop Fishery: Training industry to conduct biomass estimate surveys*' to survey any of the beds in season which have been identified as high priority but were not surveyed as a part of the 2022 Biomass Survey.

Those members and invited participants who declared a potential conflict left the meeting while the recommendations were being formed.

Recommendation

27. The RAG recommended that the following beds be surveyed during the 2022 survey:
    - KI-7
    - KI-9
    - KI-10
    - KI-BDSE
    - KI-BDE
    - AB-The hill north
    - AB-5 hour
    - FI- North of Babel
    - FI – the wreck a (previously Foochow a)
    - FI – the wreck b (previously Foochow b)
    - Exploratory in FI (noting if an area is found it will be mapped out and surveyed)
28. The RAG also recommended that four boats be used to conduct the 2022 survey.

29. John Cull, Andrew Sullivan, Stuart Richey and Matt Koopman returned to the meeting

30. The RAG thanked Fishwell Consulting for their high quality and timely work.

Action Item 1. AFMA and Fishwell Consulting to define the area in which a bed is at the start of the bed name when producing documentation e.g. FI – North of Babel.

Agenda Item 4– Harvest Strategy Review

31. The AFMA member introduced the Agenda Item and asked the RAG to provide advice on the review of the Harvest Strategy.

32. The RAG noted the following background:

- The *Commonwealth Fisheries Harvest Strategy Policy 2018* (HSP) and *Guidelines for the Implementation of the Commonwealth Fisheries Harvest Strategy Policy* (HSP Guidelines) were released in November 2018. Accordingly, all Commonwealth fishery harvest strategies need to be revised within four years to ensure they meet the requirements of the HSP.

- The Harvest Strategy last had a comprehensive review in 2014 in response to industry concerns about the cost effectiveness and flexibility of the 2012 Harvest Strategy. Since this review, in addition to the release of broader fishery polices, the management of the BSCZSF has evolved, underpinned by a better understanding of stock status from the annual biomass survey, and the need to consider the economic performance of the fishery when setting the TAC.

- AFMA are in the process of reviewing and updating the Harvest Strategy to better reflect the current state of the fishery; and which is scalable and can respond to changes in biomass or economic factors over time.

4.1 Accounting for economic performance

33. The RAG noted the following:

- The Harvest Strategy currently considers sustainability and the outputs of the annual biomass survey as the key factor in determining a TAC. The inclusion of decision rules in the Harvest Strategy that account for the economic performance of the fishery has been identified as a gap, and such decision rules are a key factor being considered in this review.

- An objective of the *Fisheries Management Act 1991* (the Act) is to maximise the net economic returns (NER) to the Australian community by implementing efficient and cost-effective fisheries management on behalf of the Commonwealth. AFMA are working on developing guidance on how the NER objective is interpreted, measuring economic performance and providing support for RAGs and MACs to consider economic information. AFMA will commence consultation with key stakeholders, including RAGs and MACs, as the development of this work progresses.

- In June 2020, AFMA funded the research project (190836) '*Informing the BSCZSF Harvest Strategy and TAC setting process with economic data and Maximum Economic Yield (MEY) proxies*'. A key output of the project was to develop a Fisheries Gross Margin (FGM) model with a view to providing information on how the fishery will perform under a range of TAC scenarios.

- The objectives of this project were to collect economic information from the scallop fishery and supply chain; suggest appropriate MEY proxies that align with the HSP; provide economic information to be considered in the TAC determination process with regards to maximising NER, and report the results to AFMA, the RAG and ScallopMAC. Further work, AFMA funded research project (200811) '*Analysis of economic data collected in the fishery*', which updates and builds on the FGM model is also progressing and is expected to be completed by June 2022.

- Both projects have raised concern that industry participation is low and will need to be improved to generate more meaningful results. The AFMA Commission have requested advice from the RAG and ScallopMAC on the findings from this project, including whether revisions to the Harvest Strategy should continue to explore incorporating the FGM model and economic-related decision rules in the TAC setting process.

34. The RAG noted a draft report of AFMA research project 190836 and a presentation from the research providers outlining the key findings.

35. The RAG made the following key points:

- FGM maximises profit in a single year (static), takes biological limits as given, models cost and price responses to changes in TAC and catch per unit effort (CPUE), the types of variable costs are typically constant but can be varied with changes in TAC. Whereas, MEY maximises profit in the long-run (dynamic), FGM incorporates biological dynamics in the model, CPUE is determined by the model and traditionally targets maximum fishery profit.
- The FGM model is a simple model that does not require as much robust data compared to an MEY model; and therefore FGM is an option for a proxy of MEY. It is also easier to understand.
- Typical MEY models can not be applied in the BSCZSF as an absolute biomass for the fishery is not obtained.
- While the FGM model is designed on the fishery in its current state, as the model is re-run each year it can be updated to account for change.
- Price flexibility, percentage change in market price given a percentage change in quantity supplied, will influence the outputs of FGM. Improved information on price flexibility would decrease uncertainty.
- Different market segments/product classes can be applied to the model if that information is available.
- While the model assumes the TAC is fully caught, this can be adjusted and considered further. Noting this assumption does not have a large influence on the model.
- How CPUE is included in the model could be further refined. For example, more weight given to the most recent year; incorporating recovery, size, density as metrics as these are commonly used by industry.
- ABARES offered to engage to share their views further, in the context of the Harvest Strategy Policy.
- A key challenge is the limited number of participants and data available to inform a model that is representative and adaptive to changes in the fishery.

36. The RAG provided the advice that while the current FGM model is not ready to be included in the revised Harvest Strategy, the RAG considered the approach to be reasonable and supported further development.

4.2 Key priorities in the Harvest Strategy

4.2.1 Definitions

37. The RAG noted the following:

- The review of the Harvest Strategy has highlighted the need for clear, robust and scalable decision rules to guide the TAC setting process.

- The Harvest Strategy Working Group (the Working Group) has discussed possible definitions of terms to be included in the revised Harvest Strategy and used in decision rules, particularly relating to scallop size, maturity, recruitment, density and how closures are implemented.
- There is currently no minimum size limit regulated in the BSCZSF, and the Working Group have advised that introducing a limit would create significant logistical and operational issues within the fishery. AFMA expects that appropriately designed closures, market limitations, and adaptive in-season management would achieve the same outcomes. AFMA propose to no longer consider a minimum landing size limit during this review.

38. The RAG noted the proposed definitions for key terms used in the fishery:
    - Mature Scallop: A scallop which is 85 mm or larger
    - Recruit: A scallop which is larger than 76 mm and smaller than 85 mm
    - Pre-recruit: A scallop which is smaller than 76 mm
    - Mature scallop bed: An area or scallop bed containing no less than 80% of scallops that are greater than 85 mm in size; and where the estimated density of scallops greater than 85 mm in size is greater than 0.2 individuals/m^2
    - Formal closure: A formal closure is one implemented by AFMA under the Harvest Strategy through a legislative determination and remains in place for the duration of the fishing season.
    - Voluntary closure: Voluntary closures are managed through the BSCZSSF Industry Management Committee (the Co-Management Committee) and may be amended in-season to adapt to any changes or issues that arise during the season (eg, swapping).
39. The RAG made the following key points:
    - While the RAG understood the need to be explicit in the definitions, some members felt that the formal closure definition did not need to state that the closure would remain in place for the duration of the season as there may be circumstances where this may not apply.
    - It is expected that even when the biomass of the fishery was low there would also be no market for small scallops due to the cost to catch and process and market demand.
40. The RAG recommended:
    - That the proposed definitions be incorporated into the revised Harvest Strategy, noting that the definition of a formal closure doesn't need to be so prescriptive.
    - That a formal minimum size is not implemented.

4.2.2 Default opening

41. The RAG noted the following background:
    - Under the current Harvest Strategy, prior to the opening of the scallop fishing season, AFMA with advice from the Co-Management Committee decide if the fishery should open under the default arrangements (150 t TAC) or conduct a biomass survey to determine if the fishery can open with a higher TAC.
    - In recent years, the Co-Management Committee have opted to conducting a biomass survey, and the 150 t 'searching TAC' has not been utilised.
    - Under the revised Harvest Strategy, AFMA proposes that the biomass survey is conducted by default, unless otherwise advised by the Co-Management Committee. In scenarios where the

biomass is low, or industry may need to search for scallops after periods of closure, a TAC of 150 t may be utilised as an alternative to the default opening.

42. The RAG made the following key points:

- The use of a default opening will also be dependant on other components of the harvest strategy review such as the application of a multi-year TAC (MYTAC).

43. The RAG recommended:

- That a default opening under the revised Harvest Strategy be that a biomass survey is conducted, unless otherwise advised by the Co-Management Committee.

4.2.3 Stock biomass level, reference points and TACs

44. The RAG noted the following:

- Under the revised Harvest Strategy, AFMA's preference is to include clear and objective decision rules for recommending TACs that are robust, scalable and reflect the current state of the fishery.
- While the estimate of biomass is based on a clearly defined and well understood survey, there is little guidance in the current Harvest Strategy on how this translates to a TAC.
- AFMA are seeking feedback on a Harvest Control Rule (HCR) framework, which provided an example of how an estimated biomass would translate to closure requirements, estimates of maximum sustainable harvest and a TAC range.
- The HCR framework is proposed to be the 'first layer', with the final recommendations for closures and the TAC to be determined based on a series of decision rules, to be developed, considering factors such a stock dynamics and fishery economics.
- The Working Group noted that while the HCR framework provides a general approach, there is limited information available to quantify sustainable harvest levels and closure requirements at various biomass levels and proposed that further advice was required.

45. The RAG made the following key points:

- While the framework would provide a maximum harvest level, decision rules to reach the final TAC recommendation will require further development.
- Consideration would need to be given to how a TAC would not be cherry picked, based on the areas surveyed.
- The HCR model does not recognise the different regions within the fishery.
- Previous advice suggested that a typical management strategy evaluation (MSE) is not an option because of the nature of the BSCZSF. However, consideration has been given to testing the revised Harvest Strategy by applying it retrospectively.
- Another option to testing the revised Harvest Strategy would be testing forward projections.

46. The RAG recommended:

- AFMA seek expert advice to inform the values within the HCR framework, specifically sustainable harvest levels and a minimum limit threshold.

Action item 2: AFMA to provide an update to ScallopRAG once expert advice has been sought to inform the values within the framework (sustainable harvest levels and a minimum limit threshold).

4.2.4 Closures and adaptive in-season management

47. The RAG noted the following:

    - The biomass, condition and size of scallops, and presence of recruits and pre-recruits are identified during the pre-season biomass survey and are a key factor in providing advice on closures. However, the understanding of the stock dynamics may change throughout the season, which may warrant flexible or adaptive management strategies that ensure continued access to the best quality scallops, whilst ensuring sustainability objectives are met.
    - Scallop beds that are closed under voluntary arrangements provide greater flexibility to adapt to changes during the fishing season.
    - AFMA's position is that there is still a need for formal closures, based on sustainability, that should remain closed for the duration of the fishing season, noting that currently closures likely protect more than the minimum biomass.
    - Guidance on determining when it is appropriate to implement a formal closure or a voluntary closure, as well as adaptive in-season management, will be captured in the revised Harvest Strategy and incorporated in the Co-Management Committees terms of reference where relevant.

48. The RAG made the following key points:

    - Formal closures, for the fishing season, may be need to be considered as a backstop for protecting future biomass, with the indicators of how these closures would be identified needing to be more clearly defined.
    - The examples of indicators provided in the cover paper were too prescriptive in regards to the source of the information.
    - Scallop condition is self-managed by operators, rather than being formally managed through a revised Harvest Strategy.

49. The RAG supported exploring the concept of indicators triggering management responses (for closures, for example), however, these would need to be very carefully considered and if adopted, shouldn't be overly prescriptive in order to maintain some flexibility in management.

4.3 Additional considerations

4.3.1 Multi-year total allowable catch (MYTAC)

50. The RAG noted the following:

    - The current Harvest Strategy requires that, following advice form the Co-Management Committee, an annual biomass survey be conducted to inform the TAC determination each year. AFMA have proposed that the biomass survey is conducted annually as the default opening of the fishery.
    - A multi-year total allowable catch (MYTAC) may be considered where the biomass is estimated at a high level, requiring the survey to be conducted less regularly and generating savings for the management costs of the fishery.

51. Given the dynamic nature of the commercial scallop stock and the history of sudden decreases in the biomass, the application of a MYTAC approach would need to be based on the risk-catch-cost framework, with a clear set of decision rules for when a survey needs to be completed outside of a MYTAC.The RAG made the following key points:

    - It would be feasible to set a MYTAC however the concept needs to be further refined, including fishery dependent data, economic metrics and break out rules.

- Any data used to monitor the MYTAC needs to be easily accessible.
- A retrospective MYTAC could be tested to determine the suitability of the approach.
- If a MYTAC was adopted, the formal closures would be very important to assist with sustaining a biomass.
- Given the dynamic nature of the fishery and the risk associated with a MYTAC, there would need to be mechanism for accounting for risk for example a discount factor, only applying a MYTAC in periods of high or stable biomass and when there is a lot of confidence in the data.

Action item 3: AFMA and Fishwell Consulting to compare catch over time from inside surveyed beds vs outside.

4.3.2 Outcomes of research

52. The RAG noted the following background:

- Research funded by the Fisheries Research and Development Corporation (FRDC; Project 2012-027, '*Determining when and where to fish: Linking scallop spawning, settlement, size and condition to collaborative spatial harvest and industry in-season management strategies'*) has provided useful insights into the biological characteristics of scallops, including fecundity and size at maturity, and peak spawning and settlement periods across the fishery.
- Some of these factors, particularly size at maturity, are explicit components of the current Harvest Strategy, whereas others such peak spawning and settlement periods may be considered for adaptive in-season management purposes.
- The current Harvest Strategy defines a commercially viable scallop as being greater than 85 mm in shell size. This is based on scallop maturity and the assumption that a scallop of that size has likely spawned twice and that after this stage, it would be suitable to harvest. However, FRDC project 2012-027 suggested that the fecundity is greater for scallops that are 90 mm in shell size.
- FRDC project 2012-027 highlighted that areas of the fishery differ in terms of the timing of peak fishing (scallop condition), and spawning and recruitment events, which may warrant different approaches to management in each area.

53. The RAG made the following key points:

- Industry-driven, adaptive in-season management may provide adequate flexibility to manage peak spawning and harvesting times during the season.
- The season start and end dates are determined annually, providing additional flexibility.
- While regional management could be applied in the fishery, it would be associated with increased complexity and costs. However, a revised Harvest Strategy should acknowledge the outcomes of the research, highlighting the differences in the regions.
- 85 mm remains an appropriate reference for shell size, noting that this is at the lower end of the mature range.

4.3.2 Climate change

54. The RAG noted the following:

- Temperature has been shown to be a clear predictor of scallop spawning timing, and is also known to influence the spatial distribution and availability of scallops during the season.

- While the Working Group recognises the need to consider the long-term impacts of climate change in the revised Harvest Strategy, they noted that where these need to be explicitly incorporated into a future Harvest Strategy, for example through harvest control rules, they should be subject to considerable scrutiny and supported by monitoring data.
- The collection of environmental data will be pursued through updates to the BSCZSF Data Plan and in collaboration with industry. In the meantime, the annual biomass survey provides a time-series and an insight to the longer-term dynamics of the stock, which is likely influenced by environmental conditions, and to some extent can be compared to environmental conditions and used as a predictor of future biomass.
- AFMA and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), through FRDC project 2016-059 '*Adaptation of Commonwealth fisheries management to climate change*', have developed a handbook to understand the risks of climate change to fisheries and addresses the management required to mitigate those risks. Recommendations from this work will be considered and incorporated as appropriate and in consultation with stakeholders.

55. The RAG made the following key points:

- Responding to long term changes and variability should be acknowledged in the revised Harvest Strategy and built into regular discussion and monitoring programs.
- Adaptive in-season management can continue to be utilized to respond to inter-annual environmentally driven changes in stock dynamics (for example, area closures).

4.3.2 Rebuilding strategy

56. The RAG noted the following:

- Formal rebuilding strategies are required to support rebuilding stocks when they are assessed as having fallen below a biomass limit reference point (or proxy thereof). Rebuilding strategies typically include a combination of management responses such as reductions to total allowable catches, area closures and modifications to gear requirements. Ongoing data collection and updates to stock assessments are also a key component of most rebuilding strategies, to ensure the status of the stock is monitored and the objectives of the rebuilding strategy are being met.
- To a large extent the mechanisms to rebuild scallop populations are already accounted for in the current Harvest Strategy; where the TAC is set at zero tonnes and the fishery closed if the biomass level falls below a limit reference point. Further, noting that definition of the default opening is being re-considered, the revised Harvest Strategy will outline a process whereby a biomass survey is not undertaken by default and a 150 t 'searching TAC' is utilised in low biomass scenarios such as during rebuilding.
- The Working Group advised that biomass levels in the fishery should be monitored during any phase of rebuilding, with clear objectives to inform when it is appropriate to re-open the fishery, regardless if under a formal rebuilding strategy. Consideration will be given to how such monitoring is funded, including whether research catch allowance is allocated, or through other data collection protocols.

57. The RAG made the following key points:

- The default opening in the current Harvest Strategy is a proxy of a rebuilding strategy and should continue to be used as a proxy of a rebuilding strategy in the revised Harvest Strategy.
- The revised Harvest Strategy should acknowledge a rebuilding phase, with an explicit statement of the plan and steps.

- The proposed HCR framework has a mechanism for a rebuilding phase with the fishery closing if the biomass estimate is below the proxy of a limit reference point.

4.3.2 Findings from the MSC assessment

58. The RAG noted the following background:

    - A recent Marine Stewardship Council (MSC) assessment for the fishery identified several conditions and recommendations that may be addressed under a revised Harvest Strategy.
    - The Harvest Strategy review to date has already considered most of the conditions and recommendations that were made; and the Working Group advised that there was no immediate action required.

59. The RAG made the following key points:

    - The majority of the conditions regarding the Harvest Strategy are already being addressed in the review.
    - In regards to the condition to peer review the assessment, the RAG supported the current process of the assessment being reviewed by the RAG. Noting there could be an additional process of independent review every five years, similar to other fisheries, however if it was required for MSC certification it should be paid for by the client.
    - In regards to the conditions on habitats, bycatch and protected species, these conditions should be addressed outside of the Harvest Strategy.

Agenda Item 5 – Five Year Strategic Research Plan

60. The AFMA member introduced the Agenda Item and asked the RAG to provide advice on the development of the BSCZSF Five Year Strategic Research Plan 2022-26.

61. The RAG noted the following background:

    - In accordance with the *Fisheries Administration Act 1992*, one of AFMA's functions is to establish priorities in respect of research relating to fisheries and arrange for the undertaking of such research. This is achieved through the AFMA Strategic Research Plan 2017-22 which sets out a framework for each fishery to review its information and development needs and to plan and develop its five year strategic research plan.
    - The research priorities for each Commonwealth fishery vary depending on the information requirements and issues faced within the fisheries. The AFMA Research Plan recognises that, due to the costs associated with research and as a result of competing pressures, there needs to be an emphasis on strategic planning to allow for the highest long-term return on research investment.
    - The existing BSCZSF Five Year Strategic Research Plan 2017-18 to 2021-22 was developed in consultation with fisheries stakeholders at the BSCZSF Research Workshop in March 2017 and identifies areas of high priority research for the BSCZSF for the period 2017-18 to 2021-22 and includes a summary of research projects to be undertaken. However, the RAG recognised that it would require significant resources and funding to complete these projects and it was unlikely that all of the projects would be completed within the five year timeframe.
    - It is the intention that the draft 2022-26 Research Plan will focuses on new and emerging issues and provides strategic direction for the fishery's research needs, aligning with the priorities and objectives outlined in the AFMA Research Plan.

62. The RAG made the following key points:

- The wording in the document should be consistent e.g. biomass assessment rather than stock assessment.
- Additional priorities regarding the validation of aging techniques, recruitment and a proxy for a limit reference point are needed.

Action item 4. AFMA to update the draft 2022-26 Research Plan with the feedback from ScallopRAG.

Agenda Item 6 – BSSIA project update

63. The BSSIA Executive Officer introduced the Agenda Item. The RAG were asked to consider the BSSIA request for 28 t of RCA as part of the FRDC project '2019-120: *Building industry capacity to lead co-management initiatives within the Bass Strait Central Zone Scallop Fishery: Training industry to conduct biomass estimate surveys and provide advice on any sustainability risks of surveys being conducted in areas closed in 2020 or areas identified to be closed in 2021*'.

64. The RAG noted the following background:

- FRDC project 2019-120 is a two year project, with the focus being educating and training skippers and crew in the use of survey techniques and equipment to enable reliable and quick assessments of scallop beds using the same methods currently used in the biomass survey.
- An assessment of the Three Hummock – North and South was undertaken in November 2021 as part of FRDC project 2019-120.

65. In formulating its advice, the RAG noted the following:

- The RAG supported a proposal for RCA for this project in 2021, however due to timing this proposal did not get put to the AFMA Commission.
- 28 t is based on four days of survey work at 7 t per day, with travel costs to be covered by the vessels undertaking the survey.
- Similar to the biomass survey, the RCA for the BSSIA project should not be taken from areas closed in 2021. Additionally the BSSIA project should not survey areas being surveyed during the 2022 biomass survey
- Based on the results of the biomass survey, there is unlikely to be any sustainability issues from allocating an 28 t RCA.
- While the RAG are being asked to provide advice on the request for RCA, the approval is at the discretion of the AFMA Commission or the AFMA Research Committee. In this case the request would be put to the AFMA Commission and if possible a decision would be made prior to the start of the 2022 fishing season.
- The first year was primarily about developing training and engaging with industry, with the second year to be an expansion.
- Industry have been notified about the project being undertaken.

66. Those members and invited participants who declared a potential conflict left the meeting while the recommendations were being formed.

Recommendations

67. The RAG supported the request for 28 t of RCA and recommended that the research be undertaken outside of the areas being surveyed during the 2022 biomass survey and those closed during the 2021 fishing season.

68. Those members and invited participants who declared a potential conflict returned to the meeting.

Close of meeting

69. The Chair thanked the RAG for their contribution to the meeting.

70. The meeting was closed at 17:12

Attachment A- register of interest

Table 1 declared interests

Name	Membership	Declared interests
Brendan Kelaher	Chair	No interest in the fishery pecuniary or otherwise.
Jayson Semmens	Scientific member	Scallop Research Group Leader, Institute for Marine and Antarctic Studies. Organisation is known to submit research funding applications for consideration by ScallopRAG
Mervi Kangas	Scientific member	Department of Primary Industries and Regional Development, WA employee. No interest in the fishery pecuniary or otherwise.
Julian Morison	Economic member	Director, Kuti Co Pty Ltd – SA Pipi quota holder; Economics member, SA Marine Scalefish Fishery, Management Advisory Committee (PIRSA); Economics member, Shark Resource Assessment Group (AFMA); Member, Economics Working Group (AFMA); Member, Human Dimensions Research subprogram Steering Committee (FRDC); Economics member, Spanner Crab Harvest Strategy Working Group (NSWDPI); Deputy economics member, Total Allowable Fishing Committee (NSWDPI)
Stuart Richey	Industry member	Holds Commonwealth and State concessions.
John Cull	Industry member	Holds Commonwealth and State concessions.
Lara Ainley	AFMA member	AFMA employee. No interest in the fishery pecuniary or otherwise.
Heather Johnston	Executive officer	AFMA employee. No interest in the fishery pecuniary or otherwise.
Matt Koopman	Invited participant, Fishwell Consulting	Fishwell Consulting. We have undertaken the BSCZSF survey since 2015. We also submit research funding applications and undertake research projects for Commonwealth, State and International fisheries agencies and other organisations including fishery associations and private companies. We are regularly engaged by SETFIA to report to numerous seismic exploration companies on fishing catch, effort and value that takes overlaps with the proposed seismic testing

		areas. This included catch and effort from the BSCZSF. Related projects are looking at the effects of the seismic survey off east Gippsland on Danish seine catches, and on scallop densities in Bass Strait. No interest in any commercial fisheries.
Don Bromhead	Invited participant, ABARES	ABARES Employee. No interest in the fishery pecuniary or otherwise.
Andrew Sullivan	Invited participant, Industry	Executive Officer, Bass Strait Scallop Industry Association
Dan Corrie	Observer, AFMA	AFMA employee. No interest in the fishery pecuniary or otherwise.

Attachment B – Action items from ScallopRAG 39

Agenda Item	No.	Action Item	Agency/Person Responsible	Timeframe
3	1	AFMA and Fishwell Consulting to define the area in which a bed is at the start of the bed name when producing documentation e.g. FI – North of Babel.	AFMA and Fishwell Consulting	Prior to ScallopRAG 40
4	2	AFMA to provide an update to ScallopRAG once expert advice has been sought to inform the values within the framework (sustainable harvest levels and a minimum limit threshold.	AFMA	TBC
4	3	AFMA to compare catch over time from inside surveyed beds vs outside.	AFMA and Fishwell Consulting	TBC
5	4	AFMA to update the draft 2022-26 Research Plan with the feedback from ScallopRAG.	AFMA	Prior to ScallopRAG 40