



Australian Government

Australian Fisheries Management Authority

Great Australian Bight Resource Assessment Group (GABRAG) 2021 Meeting

Meeting minutes

15 October 2021

Microsoft Teams Meeting

Contents

Agenda item 1. Preliminaries	3
Agenda item 2 – GAB Fishery Independent Survey	6
Agenda item 3a – Outcomes from MYTAC review	8
Agenda item 3b – Outcomes from ERA trigger review	9
Agenda item 4 – GABT Data Collection	10
Agenda item 5 – Orange Roughy Data and Assessment Options.....	10
Agenda item 6 – Orange Roughy Research Plan.....	11
Agenda item 7 – GABT Research Plan	11
Agenda item 8 – Albany and Esperance Bycatch TAC	12
Agenda item 9 – Climate change impacts in the SESSF	12
Agenda item 10 – Other business and action items.....	13
Agenda item 11 – 2022 Meeting Schedule	13
Close of meeting.....	13
Attachment A – Register of Interest	14
Attachment B – Agenda.....	17
Attachment C – Progress of Action Items from previous meetings	18
Attachment D – Action items arising from the meeting	24

Great Australian Bight Resource Assessment Group (GABRAG)

2021 Meeting – 15 October

Mr Lance Lloyd (the Chair), opened the meeting at 09:03 AEDT.

Agenda item 1. Preliminaries

1.1 Welcome and apologise

1. The Chair:
 - welcomed members and observers to the meeting; and
 - made an Acknowledgement of Country paying respect 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 GABRAG (the RAG) members noted the Acknowledgement of Country, that the meeting was being recorded, and commenced proceedings.
3. The RAG noted the current membership and attendees ([Table 1](#)) noting that all attendees were present and that there were no apologies. The RAG thanked Ms Kehani Manson for her contribution to the RAG during her time as the EO.

Table 1. A list of GABRAG members and other attendees.

Members	Position
Mr Lance Lloyd	Chair
Mr Andy Moore	Scientific member
Dr Ian Knuckey	Scientific member
Dr Eriko Hoshino	Economics Member
Mr Jim Raptis	Industry member
Mr Neil MacDonald	Industry member
Ms Marcia Valente	Industry member
Mr Daniel Corrie	AFMA Member
Executive Officer	Organisation
Mr Aaron Puckeridge	AFMA
Invited Participants	Organisation
Dr Geoff Tuck	CSIRO ¹

¹ [Commonwealth Scientific and Industrial Research Organisation](#)

Mr Kyne Krusic-Golub	FAS ²
Dr Beth Fulton ³	CSIRO
Dr Paul Burch	CSIRO
Dr Heidi Pethybridge	CSIRO
Observers	Organisation
Dr Krystle Keller	ABARES ⁴
Dr Daniel Wright	ABARES

1.2 Declarations of interest

4. The RAG attendees declared conflicts of interest as outlined in FAP 12⁵. Members and participants reviewed and updated the Declarations of Interest included at [Attachment A](#).
5. The Chair asked attendees to identify if they had any conflicts of interest with specific agenda items ([Table 2](#)).
6. The RAG determined that there was a perceived conflict of interest for [Agenda Item 6](#), Orange Roughy Research Plan for industry. However, Jim Raptis did not declare a conflict of interest, outlining that orange roughy (*Hoplostethus atlanticus*) are not a profitable species in the GAB and industry's participation in the Research Plan is to collect data on orange roughy to support science and stock assessments. As described in FAP 12, it is a member's responsibility to assess whether or not a conflict exists. Mr Jim Raptis agreed to abstain from any recommendations during the agenda item.
7. Attendees with a declared conflict of interest for any agenda item left the meeting while the remaining members discussed their participation in these items.
8. The RAG decided that participants would be included for the discussion, but would be excused from the meeting for any recommendation made by the RAG.

Table 2. Participation in items where there are declared conflicts of interest

Agenda Item	Potential conflicts of interest	Discussion Participation	Recommendation Participation
2. GAB Fishery Independent Survey	Dr Ian Knuckey	Present	Not present for any decisions to undertake future FIS ⁶ .
6. Orange Roughy Research Plan	Mr Neil MacDonald Ms Marcia Valente	Present	Not present for any recommendations of a RCA ⁷ .
8. Albany and Esperance Bycatch TAC⁸	Mr Neil MacDonald Ms Marcia Valente Mr Jim Raptis	Present	Not present for any recommendations of a bycatch TAC.

² [Fish Ageing Services](#)

³ Only present for [Agenda Item 9](#).

⁴ [Australian Bureau of Agricultural and Resource Economics and Sciences](#)

⁵ [Fisheries Administration Paper 12](#)

⁶ Fishery Independent Survey

⁷ Research Catch Allowance

⁸ Total Allowable Catch

1.3 Adoption of agenda

9. The RAG adopted the agenda ([Attachment B](#)) as final.

1.4 Minutes of previous meeting

10. The RAG noted the final minutes of the 2020 GABRAG meeting of 7-8 October are available on the AFMA website www.afma.gov.au/sites/default/files/gabrag_october_2020_minutes_final.pdf.

1.5 Actions arising from previous meetings

11. The RAG noted the action items from previous meetings and the updates provided by the Executive Officer at [Attachment C](#).

12. A list of new action items established at this meeting are provided at [Attachment D](#).

13. The RAG specifically discussed the following items:

Action Item 1: November 2019 – Agenda Item 1.4

CSIRO/AFMA to provide the RAG with the outcomes from Andre Punt's research looking at age and length sampling across stock assessments of SESSF⁹ species; when they become available. Outcomes and how they apply to the GAB will be considered at a future GABRAG meeting.

- A Data Collection and Sampling Protocol Working group, consisting of AFMA and GABIA¹⁰ members (see [Action Item 2](#)) will be created. This working group will consider the outcomes from Dr Andre Punt's research and how it applies to the GAB. Once established, this action item should be removed from the Action list.
- Dr Andre Punt's research: [the impact of alternative age-length sampling schemes on the performance of stock assessment methods](#) was provided to GABRAG.

Action Item 8: October 2020 – Agenda Item 2.1

The GAB Orange Roughy Working Group (Dan Corrie, Ian Knuckey, Geoff Tuck, Andy Moore, Neil MacDonald and Jim Raptis) to meet to determine the metrics, for the identified lines of evidence (i.e. ERA¹¹, age structure, CPUE¹², acoustic & egg surveys), that would be required to demonstrate recovery of the GAB orange roughy stock.

- The RAG agreed that this action item can be closed, subject to GAB orange roughy being included in the non-eastern orange roughy data and stock assessment review, as it will identify the data required to support a stock assessment.

Action Item 10: October 2020 – Agenda Item 2.1

AFMA to contact the Department of Agriculture, Water and Environment (DAWE), AFMA Commission and ABARES to request a clear set of criteria that would need to be met before commercial orange roughy fishing could recommence in the GABT¹³ sector under the SESSF Harvest Strategy.

- The RAG agreed that this action item be reworded to 'As an extension component to the 'non-eastern orange roughy data and assessment options' AFMA to consider which lines of evidence

⁹ Southern and Eastern Scalefish and Shark Fishery

¹⁰ Great Australian Bight Fishing Industry Association

¹¹ Ecological Risk Assessment

¹² Catch Per Unit Effort

¹³ Great Australian Bight Trawl

and criteria would be used to consider allowing targeted fishing for non-eastern orange roughy stocks.’ Noting that ongoing work is needed to identify the data required to support an orange roughy stock assessment in the GAB.

- The [SESSF Harvest Strategy Framework](#) (the Harvest Strategy) requires a stock to be above the limit reference point before it can be commercially harvested.

Action Item 12: October 2020 – Agenda Item 2.3

AFMA to investigate the feasibility of extending the ‘Albany’ Orange Roughy Research Zone to encompass the entire Albany Quota Zone.

- This item was discussed at the [2020 GABMAC¹⁴ meeting](#). It was concluded that the effort required to amend the closure, far outweighed the benefit of amending it.
- The RAG agreed with GABMAC’s conclusion, this item will be closed.

Action Item 13: October 2020 – Agenda Item 2.3

AFMA to further investigate the justification for initially setting the Albany & Esperance bycatch TAC at 50 t.

- The RAG agreed to close this action item.
- AFMA has found no record of the decision to change the bycatch TAC from 25 to 50 t.
- The RAG noted that orange roughy are an aggregating species, and it is feasible that a bycatch of orange roughy could be as large as 50 t. The 50 t bycatch TAC minimises the risk of discards.

Action Item 18: October 2020 – Agenda Item 5

At their 2021 meeting, GABRAG to consider sensitivities (including the FIS series) for inclusion in the deepwater flathead stock assessment scheduled for 2022.

- The RAG agreed to close this action item, noting that sensitivities, including the FIS series, would always be discussed in a stock assessment preliminary base case, and this cannot be discussed until there is a preliminary base case.

Agenda item 2 – GAB Fishery Independent Survey

14. The RAG noted that the GABFIS was completed in March 2021 by [Fishwell Consulting](#), continuing a series of 8 surveys, commencing in 2005 and the RAG noted Dr Knuckey’s presentation of the results:

Catch Composition

- Catches in the 2021 FIS were dominated by wide stingarees (*Urolophus expansus*), which comprised 64 per cent of total catch. Estimates of wide stingaree abundance from the GABFIS have gradually increased over time.
- The catch composition of Bight redfish (*Centroberyx gerrardi*) has been declining through subsequent FISs. Bight redfish composed 2 per cent of total catch in 2021.
- Catches of deepwater flathead (*Platycephalus conatus*) have also decreased, although not as substantially as Bight redfish. Deepwater flathead comprised 5 per cent of the total catch.
- These results suggest the catch composition in the GAB is changing and this could be an indicator of long-term ecosystem change in the GAB.

15. Industry members discussed the GABFIS catch composition with the RAG:

¹⁴ Great Australian Bight Management Advisory Committee

- Stingarees are becoming more abundant throughout the GAB and at times are making it difficult to catch target species.
- The large mass of stingarees in the net's codend could reduce the effectiveness of a shot and distort the abundance estimates derived from the FIS.
- Recording gear-associated parameters such as headrope position could allow for the trawl door spread to be calculated. This would offer an insight into the effect stingarees are having on a shot.
- Dr Knuckey commented that the boat used for the FIS likely recorded this information and it could be analysed if necessary.

Length-frequencies of deepwater flathead and Bight redfish

- In the 2021 FIS, Bight redfish length frequencies were skewed towards smaller fish, with a modal length of 28 cm. Large size classes of Bight redfish were recorded but at a lower frequency. These larger size classes were beginning to disappear in the previous FIS. The scarcity of larger fish is a poor indicator for the Bight redfish stock ([Figure 1](#)).
- Deepwater flathead length-frequencies are representative of a healthier stock, with a modal length of 43 cm, which is a similar to previous years although larger fish appeared to be less common ([Figure 1](#)).

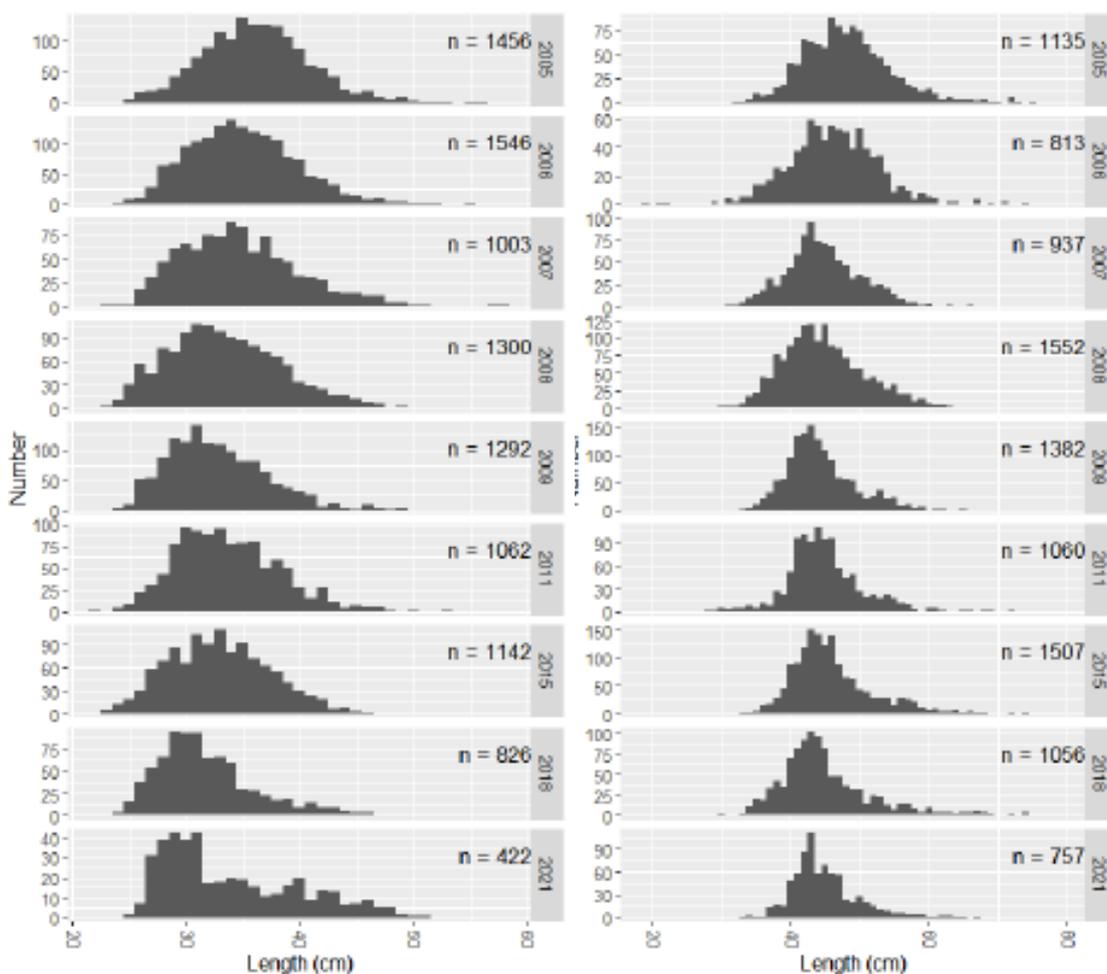


Figure 1. Length-frequencies (total length) of Bight redfish (left) and deepwater flathead (right) during the 2005-2021 surveys.

Relative abundance estimates

- Biomass estimates of deepwater flathead (5,225 t, CV 0.08) and, particularly Bight redfish (*Centroberyx gerrardi*) (3, 447 t, CV 0.21) show continued decline (2021, 2018, 2015) relative to estimates provided from surveys from 2005–2011. However, 2021 estimates for deepwater flathead are more than 50 per cent greater than 2018 estimates (3,396 t, CV 0.06) (Knuckey et al, 2021¹⁵).
16. The RAG noted the results of the FIS, including the ongoing concerns relating to the estimated of biomass for the Bight redfish stock. The RAG also noted that current commercial catches of Bight redfish are unconstrained by the TAC.
17. This agenda item was for information only – further discussion regarding the results of the FIS were considered in later agenda items.

Agenda item 3a – Outcomes from MYTAC review

18. The RAG noted the MYTAC¹⁶ review criteria and breakout rules that are defined in the Harvest Strategy and that the MYTAC working group had reviewed the MYTACs and fishery indicator data for deepwater flathead (first of three year MYTAC) and Bight redfish (first of five year MYTAC) at the 2021 SESSFRAG¹⁷ Data Meeting in August. SESSFRAG noted the following:
- A key fishery indicator that is reviewed by the MYTAC working group is the per cent of the TAC that is caught in a given season. If more than 50 per cent of the TAC is caught, this prompts further analysis of fishery indicators.
 - In the 2020-21 season, 23 per cent of the Bight redfish TAC was caught (202 t of 893 t) and 51 per cent of the deepwater flathead TAC was caught (628 t of 1238 t).
 - Noting that the CPUE series for both Bight redfish and deepwater flathead was stable, the MYTAC working group and SESSFRAG recommended that the MYTAC be maintained for Bight redfish and deepwater flathead.
 - Noting the results of the FIS, GABRAG may wish to review other options for the Bight redfish MYTAC.
19. The RAG discussed how mechanical issues in the GABT fleet in the 2020-21 season had resulted in low catches for both Bight redfish and deepwater flathead and the per cent of the captured TAC may not be a viable indicator of the stock's health.
20. The RAG recalled the results of the 2021 GABFIS:
- Indicators of abundance from the FIS oppose the 2019 Bight redfish stock assessment and commercial CPUE which are positive indicators for the stock.
 - The FIS indices for deepwater flathead are consistent with the Tier 1 stock assessment, which estimates the stock to be around the target reference point.
 - Decreased catches of Bight redfish could also be caused by ecosystem change. There are reports of inshore state operators catching large quantities of large Bight redfish.

¹⁵ Knuckey, I., Koopman, M., and Hudson, R. (2021). Resource Survey of the Great Australian Bight Trawl Sector –2021. AFMA Project 2019/0837. Fishwell Consulting 40pp.

¹⁶ Multi-Year Total Allowable Catch

¹⁷ [Southern and Eastern Scalefish and Shark Resource Assessment Group](#)

21. Dr Paul Burch commented that ageing archived otoliths could offer a better understanding of the age structure of the Bight redfish stock and how heavily they may have been exploited.
 - Mr Kyne Krusic-Golub added that FAS could accommodate the ageing of Bight redfish in the current 2021-22 ageing plan. FAS would also be able to have otoliths aged before the SESSFRAG meeting in March 2022.
22. CSIRO identified an issue with the GAB crew based sampling program, with some data sheets not indicating whether the catch was graded before length frequencies were recorded. It is believed that most of this catch was graded by size and will need to be excluded from assessments. CSIRO requested the RAG's advice on how to address the data issue.
 - The RAG recommended that industry and CSIRO work to try salvage any measurements of ungraded catch and identify the measurements of graded fish that need to be excluded.
23. The RAG recommended that the stock assessment for Bight redfish should be brought forward to 2022, in replacement of deepwater flathead. Doing so will mean deepwater flathead will extend beyond the current MYTAC, and GABRAG should consider discounts to the RBC to account for time-induced risk.
24. The RAG recommended the current Bight redfish RBC¹⁸ of 912 t is maintained into the 2022-23 fishing season, noting catches are not currently constrained by the TAC, and the 2022 Tier 1 Bight redfish Stock Assessment will inform the 2023-24 RBC. The RAG also recommended maintaining the current RBC of 1,238 t for deepwater flathead for the 2022-23 fishing season.

Action Item 1: Paul Burch (CSIRO)

Paul Burch to investigate the issue of size grading for Bight redfish crew collected length data and contact industry regarding the outcome (whether to include or exclude data). The results of this are to be reported to the SESSFRAG data or chair's meeting in 2022.

Agenda item 3b – Outcomes from ERA trigger review

25. The RAG noted the background on ERAs and the ERA trigger review:
 - CSIRO undertakes ERAs for AFMA's fisheries, which are scheduled every five years for major fisheries.
 - The trigger review process tests that the assumptions of ERAs are true and whether there have been any changes to the fishery that would change the ERA's risk profile in between assessments.
 - The ERA trigger analysis has been completed for the GABT sector, and was reviewed by SESSFRAG at its August 2021 data meeting.
 - There was little change to the effort footprint of the GABT sector but a question was raised as to whether the increased catch of stingarees in the GABFIS could change the GABT sector's risk profile, and whether an updated ERA should be completed.
26. The RAG discussed that the spike in stingaree catches likely indicates an increase in abundance. The RAG has no information that suggests that the stingaree's productivity or susceptibility scores would have changed and this would not change the ERA results.
27. Industry noted that they had observed cyclical abundance spikes for other species and this may be a part of a broader boom and bust pattern in the GAB.
28. The RAG recommended that the ERA should not be updated.

¹⁸ Recommended Biological Catch

Agenda item 4 – GABT Data Collection

29. The RAG noted that AFMA and GABIA were seeking the RAG's advice on developing a working group to review data needs and sampling requirements in the GAB. The RAG also noted the following background:
- AFMA has a [SESSF Data Plan](#) which includes sampling targets for GABT species.
 - AFMA and GABIA have been discussing the need to review data collection protocols in the GAB. This could be addressed through a working group.
 - This working group would also address many of GABRAG's outstanding data associated action items ([Attachment C](#)).
30. The RAG recommended that AFMA and GABIA establish the data collection and sampling protocol working group.

Action Item 2: AFMA and GABIA

AFMA and GABIA to develop a GAB Data Collection and Sampling Protocol Working Group, and provide a draft plan to the SESSF 2022 data meeting.

Agenda item 5 – Orange Roughy Data and Assessment Options

31. The RAG noted that Mr Kyne Krusic-Golub (FAS) and Dr Heidi Pethybridge (CSIRO) were providing presentations which would assist the GAB Data Collection and Sampling Protocol Working Group (the Working Group), including ageing work to support a stock assessment of orange roughy in the GAB.
32. Dr Heidi Pethybridge provided a presentation to the RAG, describing the decision making tool, [Fishpath](#):
- Fishpath asks a series of questions about a stock and dynamics of the fishery and can help identify data gaps which could be filled to support a stock assessment. Using the Fishpath tool would give the Working Group and RAG data collection options.
 - The RAG agreed that the Fishpath tool could be a low cost option to identify data gaps.
33. Mr Kyne Krusic-Golub provided a presentation on the FAS orange roughy data base.
- FAS has an archive of 10,390 orange roughy otoliths from the GAB which were caught between 1990 and 2021.
 - A large portion of FAS's otoliths are known to be from the GAB, but are not assigned an orange roughy zone (see [Orange Roughy Research Plan for the GABTF 2020-2024](#) (the Research Plan)). This could be amended by comparing the otolith harvest date to AFMA's logbook data.
 - Mr Kyne Krusic-Golub noted that orange roughy otoliths are difficult and expensive to age. The RAG and the Working Group may wish to explore the viability of otolith weights in assessments.
34. The RAG recommended that FAS should work on the orange roughy otoliths in a staged approach and incorporate some of the work into the ageing budget for the 2021-22 financial year. The Working Group will provide final sampling instructions to FAS.
35. The RAG also recommended that the Working Group should discuss acoustic surveys with Dr Tim Ryan (CSIRO) on the feasibility and value of acoustic surveys in the GAB to support an orange roughy assessment.

Action Item 3: AFMA and Fishwell Consulting

Fishwell Consulting and AFMA to work with FAS to identify missing orange roughy zone data for archived orange roughy otoliths.

Agenda item 6 – Orange Roughy Research Plan

36. The RAG noted that a RCA for the 2022-23 season needs to be recommended and that industry had made a submission to increase the RCA to 300 t to increase the incentive to fish under the Orange Roughy Research Plan. The RAG noted the following background:
- AFMA revised the orange roughy research plan for the GAB in 2019 and the current Research Plan was published in 2020.
 - A 200 t RCA has been allocated since the Research Plan was created. Originally there were catch triggers across each of the orange roughy zones in the GAB. Industry were concerned that the catch triggers were a barrier to participating in the Research Plan so these catch triggers were removed. An Olympic RCA was also introduced for the 2021-22 fishing year to increase the incentive of participating in the Research Plan and catching orange roughy.
37. Industry provided an update on their participation in the Research Plan:
- In the 2021-22 season 27 t of orange roughy was captured with 360 otoliths harvested.
 - Gonad stages were not collected although this will be incorporated into future sampling.
 - Total catch was expected to be higher, but one of the participating boats had a mechanical issue during the orange roughy peak aggregating period.
 - Fishing for orange roughy is not financially viable and requires a significant amount of a boat's time and fuel which could be used to target other species. The GABT fleet needs a greater incentive to fish under the Research Plan.
 - Increasing the RCA could provide further incentives for operators to target orange roughy.
38. Invited Participants from CSIRO commented that focussing catches on a single seamount or hill in each fishing season could be beneficial for assessments.
39. The RAG noted total catches are still well below the 200 t RCA, which is sufficient to support ongoing data collection.
40. The RAG recommended¹⁹ that the RCA remain as 200 t for the 2022-23 season.

Agenda item 7 – GABT Research Plan

41. The RAG noted that all of AFMA's RAGs are required to develop an annual research plan for relevant fisheries. Any research priorities identified by GABRAG for the 2023-24 financial year will be discussed at GABMAC, then SESSFRAG in 2022, before final consideration by the AFMA Research Committee.
42. Mr Neil MacDonald updated the RAG on GABIA's market research work and provided that the GABT sector may seek MSC²⁰ certification for key species in the future.
43. The RAG recommended²¹ that the 2024 GABFIS be included as the sole research priority, as a medium cost, high feasibility item.

¹⁹ Mr Jim Raptis and those who had declared a conflict of interest left the meeting prior to the recommendation being made.

²⁰ [Marine Stewardship Council](#)

²¹ Those who had declared a conflict of interest left the meeting prior to the recommendation being made.

Agenda item 8 – Albany and Esperance Bycatch TAC

44. The RAG noted that an orange roughy bycatch TAC needs to be recommended for the Albany and Esperance zone for the 2022-23 fishing season.
45. Noting the previous discussion during the review of the action items ([Agenda Item 1.5](#)), and that orange roughy are an aggregating species with shots in excess of 25 t a possibility, the RAG did not have any new information with which to revise the previous bycatch TAC, and recommended²² that the bycatch TAC of 50 t remain for the 2022-23 season.

Agenda item 9 – Climate change impacts in the SESSF

46. The RAG noted Dr Beth Fulton’s presentation, and its context in broader climate change work being addressed through SESSFRAG.

Climate Change Adaptation Handbook

- The [Climate Change Adaptation Handbook](#) sets out the steps to understand:
 - the climate driven changes to ocean variables;
 - the sensitivity of individual fisheries to change; and
 - the natural adaptability of a fishery and whether management changes are needed to guide climate change adaptation.
- The following became evident while developing the handbook:
 - Increased variability in environmental conditions are likely. These shifting ecosystem states may go unnoticed which could undermine sustainability.
 - All AFMA fisheries have valuable species that are sensitive to climate change.
 - Bycatch and TEP²³ species are likely to be highly sensitive to climate change, it will be important to understand how that interacts with any fishing effects.
 - Cross-jurisdictional management coordination will be needed.
 - Catch information will not be the only thing that should be relied on for fishery information.
 - There will be both positive and negative implications for fishing industries from climate change effects.

Ecosystem Indicators Work

- A working group, funded by CSIRO and the [Lenfest Oceans Program](#) has considered social, economic and ecological indicators to provide guidance on harvest controls and management indicators based on ecosystems.
- Australia is much less productive than other areas throughout the world and our marine ecosystems produce a lower biomass.
- It is likely that biomass in the SESSF was overfished through the 1990s to 2000s. There is evidence of this overfishing in SESSF logbook data.
- Management has started to restore the SESSF, although we are seeing it being restored at a different equilibrium, with other species becoming more dominant.

²² Those who had declared a conflict of interest left the meeting prior to the recommendation being made.

²³ Threatened Endangered and Protected

- The SESSF is a partially resilient fishery, meaning that it can recover from stressors without crashing. Adding stressors such as climate change effects and marine heatwaves lowers the resilience.
- Many of the SESSF species are currently being exploited at a level that could compromise the resilience of the ecosystem.
- Traditional single species fisheries management puts too much pressure on the ecosystem. Managing TACs from an ecosystem level could be more sustainable.
- Bight redfish and deepwater flathead are believed to be at a healthy biomass and resilient to stressors.

47. Industry and scientific members agreed that the conclusions of this presentation broadly echoed the results of recent FISs and commercial catches.

- Climate induced ecosystem change in the GAB could explain decreases in target species such as Bight redfish and the abundance of bycatch species such as stingarees.

48. The RAG noted the importance of incorporating climate change into future management regimes and thanked Dr Fulton for the presentation.

Agenda item 10 – Other business and action items

49. The Chair noted the proceedings and asked the RAG if there were further items the RAG wished to discuss.

- Mr Jim Raptis noted he was personally interested in assessing how stingarees are affecting trawl net efficiency using a flume tank, and that he would report back to the RAG on his results.

50. The Executive Officer reviewed the action items which arose from the meeting and these were endorsed by the RAG (see [Attachment D](#)).

Agenda item 11 – 2022 Meeting Schedule

51. Noting the outcomes of the MYTAC review ([Agenda Item 3.1](#)), a tier 1 stock assessment will be completed for Bight redfish in 2022. Considering that an assessment is being run, GABRAG will be required to meet twice in 2022.

52. The RAG agreed that the two meetings would be held in September and November 2022, with the final dates to be decided based on member availability.

Close of meeting

53. The Chair thanked the RAG for their contribution and closed the meeting at 16:58 AEDT.

Attachment A – Register of Interest

Name	Membership	Declared interests
Mr Lance Lloyd	Chair	<ul style="list-style-type: none"> • No interest in the fishery pecuniary or otherwise • Member of GABMAC and SESSFRAG • Board Member, AwF – Aquaculture without Frontiers (Australia) • Director – Lloyd Environmental Pty Ltd. • Research Fellow – Federation University Australia
Dr Andy Moore	Scientific member	<ul style="list-style-type: none"> • No personal pecuniary interest • Employed by ABARES – interest in sources of funding for research purposes • Involved in the Gemfish stock structure project and the Western gemfish Tier 1 assessment • Senior Research Fellow – University of Queensland • Principal Investigator on the National Recreational Fishing survey • Co-investigator on school whiting stock structure and biology project
Dr Ian Knuckey	Scientific member	<p>Positions:</p> <ul style="list-style-type: none"> • Director – Fishwell Consulting Pty Ltd • Director – Olrac Australia (Electronic logbooks) • Chair – Northern Prawn Fishery Resource Assessment Group • Chair – Tropical Rock Lobster Resource Assessment Group • Chair – Victorian Rock Lobster and Giant Crab Assessment Group • Chair – Victorian Central Zone Abalone Fisheries Resource Advisory Group • Chair – Gulf of St Vincent’s Prawn Fishery MAC Research Scientific Committee • Scientific Member – Northern Prawn Management Advisory Committee • Scientific Member – SESSF Shark Resource Assessment Group • Scientific Member – SESSF Great Australian Bight Resource Assessment Group • Scientific Member – Gulf of St Vincent’s Prawn Fishery Management Advisory Committee • Scientific Member – Tropical Tuna Resource Assessment Group • Scientific Member – SESSF Resource Assessment Group • Member – Victorian Marine and Coastal Council • Member – The Geelong Agri Collective <p>Fishwell current projects:</p> <ul style="list-style-type: none"> • DAWE Project – Multi-sector fisheries capacity building • AFMA 2019-0836 – Informing the Bass Strait Central Zone Scallop Fishery Harvest Strategy and TAC setting process with economic data and MEY proxies • FRDC project – Principal Investigator for SA Peak Industry body project • AFMA project – Design sea cucumber fishery-independent survey for the Coral Sea • FRDC 2019-027 Improving and promoting fish-trawl selectivity in the SESSF and GABTS

		<ul style="list-style-type: none"> • FRDC 2019-072 A survey to detect change in Danish Seine catch rates of Flathead and School Whiting resulting from CGG seismic exploration • FRDC 2019-129 Potential transition of shark gillnet boats to longline fishing in Bass Strait - ecological, cross-sectoral, and economic implications • FRDC 2018-021 Development and evaluation of SSSF multi-species harvest strategies • AFMA 2020-0807 Bass Strait Scallop Fishery Survey – 2020-22 • Traffic Project Shark Product Traceability • NT Fisheries Design and implementation of a tropical snapper trawl survey • Sea Cucumber Ass. Design and implementation of a sea cucumber dive survey Information to support non-detrimental finding of fisheries for Black Teatfish and White Teatfish • Australia Bay Information to support Wildlife Trade Operation for the Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery • Tas. Abalone Scientific Advisor for Tasmanian Abalone Council Ltd • PEMSEA Developing EAFM Plan of Red Snapper for Arafura and Timor Seas Region • Beach Energy – BACI study of Prion Marine Seismic Survey impacts relative biomass of scallops on beds in the immediate vicinity • Expert witness – Gladstone Harbour development impacts
Dr Eriko Hoshino	Economics Member	<ul style="list-style-type: none"> • Employed by CSIRO, Marine Resource Economics Group • Adjunct with the University of Tasmania, Tasmanian School of Business and Economics (TSBE) & IMAS • Principal investigator (PI) on characterising socioeconomic contribution of the tropical tuna fisheries in Indonesia project • Acquiring funding for research purposes
Mr Jim Raptis	Industry member	<ul style="list-style-type: none"> • GABMAC Industry Member • Operates two boats in the GABT Fishery and owns four GABT SFRs as well as quota in the Southern and Eastern Scalefish and Shark Fishery
Mr Neil MacDonald	Industry member	<ul style="list-style-type: none"> • Director NMAC (SA) P/L • Executive Officer of the Great Australian Bight Industry Association (GABIA) • Executive Officer of Charter Boat Association South Australia • Executive Officer Southern Fishermen’s Association • Executive Officer of Saint Vincent Gulf Prawn Boat Owner’s Association • Executive Officer of Marine Scale Net Fishers Association • Committee support services South Australian Rock Lobster Management Advisory Committee & Research Sub-Committee • Support services South Australian Professional Fishers Association • Chair of CGG Gippsland MSS Scientific Advisory Committee • GABMAC Industry Member • Gulf St Vincent Prawn Fishery Management Advisory Committee (SVGPBOA) Member • Gulf St Vincent Prawn Fishery Research Sub-Committee (SVGPBOA) Member • Lakes & Coorong Fishery Management Advisory Committee (LCFMAC) • Director of the Australian Council of Prawn Fisheries

Ms Marcia Valente	Industry member	<ul style="list-style-type: none"> • Committee Consultant for Silver Phoenix Holdings who hold two GABT SFRs
Mr Dan Corrie	AFMA Member	<ul style="list-style-type: none"> • No pecuniary or other interest in the SESSF • Employed by AFMA. Manager of the Commonwealth Trawl Sectors
Mr Aaron Puckeridge	Executive Officer	<ul style="list-style-type: none"> • No interest, pecuniary or otherwise • Employed by AFMA, in the Trawl Team
Invited Participants		Declared interests
Dr Geoff Tuck		<ul style="list-style-type: none"> • Employed by CSIRO. Involved in stock assessments • Interest in obtaining funding for future research • Principal investigator (PI) on SESSF stock assessment project • Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification • Scientific member of SERAG
Mr Kyne Krusic-Golub		<ul style="list-style-type: none"> • Director at Fish Ageing Services • Fish Ageing Services is contracted to undertake fish ageing for the SESSF • No pecuniary interest within the fishery other than the potential for obtaining future funding for research or service provision
Dr Beth Fulton		<ul style="list-style-type: none"> • Employed by CSIRO, ecosystem and climate scientist, Portfolio Leader for Integrated Marine Management • Adjunct with the University of Tasmania (Deputy Director for the Centre of Marine Socioecology) • Acquiring funding for research purposes
Dr Paul Burch		<ul style="list-style-type: none"> • CSIRO, Assessment Scientist. Acquiring funding for research purposes • CSIRO representative on the Fisheries Statistics and Information Working Group • PI on the data services contract
Observers		Declared interests
Dr Krystle Keller		<ul style="list-style-type: none"> • Employed by ABARES. No interest, pecuniary or otherwise
Dr Daniel Wright		<ul style="list-style-type: none"> • Employed by ABARES. No interest, pecuniary or otherwise

Attachment B – Agenda

Time (AEDT): 9:00-17:00

Location: Microsoft Teams

Chair Name: Lance Lloyd

Approximate time	Item	Purpose	Lead presenter
9:00 (30 mins)	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	Aaron Puckeridge
9:30 (90 mins)	Agenda item 2. GAB Fishery Independent Survey (FIS)	For discussion	Ian Knuckey
11:00 (15 min)	Break		
11:15 (30 mins)	Agenda item 3.		
	3a. Outcomes from MYTAC review	For advice	Dan Corrie
	3b. Outcomes from ERA trigger review	For advice	Dan Corrie
11:45 (30 mins)	Agenda item 4. GABT Data Collection	For advice	Dan Corrie Neil MacDonald
12:15 (30 mins)	Lunch		
12:45 (60 mins)	Agenda item 5. Orange Roughy Data and Assessment Options	For noting	Dan Corrie Paul Burch Kyne Krusic-Golub
13:45 (45 mins)	Agenda item 6. Orange Roughy Research Plan	For advice	Dan Corrie
14:30 (45 mins)	Agenda item 7. GABT Research Plan	For advice	Dan Corrie
15:15 (15 mins)	Break		
15:30 (60 mins)	Agenda item 8. Climate change impacts in the SESSF	For noting	Beth Fulton
16:30 (15 mins)	Agenda item 9. Other business and action items	For advice	Aaron Puckeridge
16:45 (15 mins)	Agenda item 10. 2022 meeting schedule	For noting	Aaron Puckeridge
17:00	Meeting close		

Attachment C – Progress of Action Items from previous meetings

Complete/Redundant	Underway	Yet to start	Need further advice
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	Agenda Item	No.	Action Item	Agency/Person Responsible	Timeframe	Progress
	1.4/ Nov 2019	1	CSIRO/AFMA to provide the RAG with the outcomes from Andre Punt’s research looking at age and length sampling across stock assessments of SESSF species; when they become available. Outcomes and how they apply to the GAB will be considered at a future GABRAG meeting.	CSIRO/AFMA	As soon as the research report becomes available.	<p>The report was distributed to the RAG and is also available online (link here).</p> <p>AFMA are proposing that a working group is established to review the data collection program in the GABT, which would include reviewing length frequency targets for key species.</p> <p>This action item should be closed, subject to the working group being established and this report being considered by the group.</p>
	3/ Nov 2019	2	GABIA, AFMA and Dr Burch to collaborate and review Section 5: <i>Data collection and research</i> of the Great Australian Bight Trawl Fishery boat Operating Procedures Manual, to ensure that all data required by CSIRO for stock assessments is clearly identified	GABIA, AFMA and CSIRO	As soon as practicable	<p>AFMA are proposing that a working group is established to review the data collection program in the GABT, which would include revisions to the Boat Operations Manual.</p> <p>This action item should be closed, subject to the working group being established and this work being included in the workplan.</p>

		and the procedures for collecting this data are outlined			
1.2 Feb 2020	3	AFMA to consider appointing an additional independent scientific member to GABRAG	AFMA	As soon as practicable	AFMA will consider this as part of the upcoming RAG/MAC appointment process.
2.2 Feb 2020	4	AFMA to circulate Fishwell's report for AFMA Project 2019/0816 <i>Inter-annual variation in FIS abundance indices</i> to CSIRO and GABRAG members.	AFMA	As soon as practicable	This item has not progressed. This should be considered as part of the GABFIS presentation at Agenda Item 2 2021 and the status of this item reviewed accordingly.
1.5 / Oct 2020	5	AFMA to contact Dr Paul Burch (CSIRO) to identify the data which resulted in the 190m depth spike recorded for Bight redfish in 2016; and why this same spike is not evident within data extracted directly from AFMA's database.	AFMA	As soon as practicable	This item has not progressed but will be maintained and prioritised closer to the Bight redfish stock assessment.
1.5 / Oct 2020	6	AFMA, GABIA and OLRAC to work together to implement electronic reporting for GABT crew collected data.	AFMA/GABIA/OLRAC	As soon as practicable	AFMA and GABIA are proposing that a working group is established to review the data collection program in the GABT, which would include digitising the crew data collection program. This action item should be closed, subject to the working group being established and this work being included in the workplan.

2.1 / Oct 2020	7	AFMA to investigate whether a historical CPUE analysis of GAB orange roughy was included in a previous orange roughy (western) stock assessment.	AFMA	As soon as practicable	<p>This work should be absorbed by non-eastern orange roughy review of data and stock assessments.</p> <p>This action item should be closed, subject to that project commencing and this work being included in the workplan.</p>
2.1 / Oct 2020	8	The GAB Orange Roughy Working Group (Dan Corrie, Ian Knuckey, Geoff Tuck, Andy Moore, Neil MacDonald and Jim Raptis) to meet to determine the metrics, for the identified lines of evidence (i.e. ERA, age structure, CPUE, acoustic & egg surveys), that would be required to demonstrate recovery of the GAB orange roughy stock.	Working Group	As soon as practicable	<p>This work should be absorbed by non-eastern orange roughy review of data and stock assessments.</p> <p>This action item should be closed, subject to that project commencing and this work being included in the workplan.</p>
2.1 / Oct 2020	9	<p>AFMA to contact Fish Ageing Services (FAS) to:</p> <p>a. Determine the number of GAB orange roughy otoliths available for ageing; and</p> <p>b. Obtain an estimated cost for ageing available otoliths.</p>	AFMA	As soon as practicable	<p>This will be presented at agenda item 5 at GABRAG October 2021.</p>

2.1 / Oct 2020	10	AFMA to contact the Department of Agriculture, Water and Environment, AFMA Commission and ABARES to request a clear set of criteria that would need to be met before commercial orange roughy fishing could recommence in the GABT sector under the SESSF Harvest Strategy.	AFMA	As soon as practicable	<p>The criteria will be dependent on which lines of evidence and associated metrics are used to estimate the status of each stock.</p> <p>This action should be amended as follows:</p> <p>As an extension component to the 'non-eastern orange roughy data and assessment options' AFMA to consider which lines of evidence and criteria would be used to consider allowing targeted fishing for non-eastern orange roughy stocks.</p>
2.2 / Oct 2020	11	GABIA to provide AFMA with out of session advice regarding Industry's feedback on the proposal to manage the GABT orange roughy Research Catch Allowance (RCA) as an Olympic RCA; instead of equal allocation across scientific permits.	GABIA	As soon as practicable	Industry support the application of an Olympic RCA for the 2021-22 fishing season.
2.3 / Oct 2020	12	AFMA to investigate the feasibility of extending the 'Albany' Orange Roughy Research Zone to encompass the entire Albany Quota Zone.	AFMA	As soon as practicable	<p>GABMAC (2020) noted the amount of work required to amend closure directions and agreed this was not a priority.</p> <p>This item will be closed.</p>
2.3 / Oct 2020	13	AFMA to further investigate the justification for initially setting the	AFMA	As soon as practicable	AFMA has found no record of the decision to change the bycatch TAC from 25 to 50 t. The RAG noted that orange roughy are an aggregating species, and it is feasible that an

		Albany & Esperance bycatch TAC at 50 t.			accidental catch of orange roughy could be as large as 50 t. The 50 t bycatch TAC minimises the risk of discards. This item will be closed
3 / Oct 2020	14	AFMA to contact ComRAC to follow up on the progress of the FRDC project proposal, designed to establish a baseline index of abundance for Harrison's and southern dogfish; with the view to including one or more of the GAB closures in the survey design.	AFMA	As soon as practicable	The research was supported by the AFMA Research Committee and will commence in the 2021-22 financial year. The GABT 60-mile closure is included as one of the sampling sites.
2 / Oct 2020	15	AFMA to instate terms of reference specific to GABRAG meetings; to outline the attendance required for a quorum; based on GABRAG's membership.	AFMA	As soon as practicable	This work has not progressed. GABRAG membership will be renewed by June 2022 – AFMA will consider a specific terms of reference for GABRAG as part of that process.
5 / Oct 2020	16	Dr Knuckey to analyse the impact of environmental variables on catch rates, using data collected during the GABFIS.	Dr Knuckey	As soon as practicable	Dr Knuckey will provide an overview of the 2021 GABFIS at Agenda item 2. Subject to RAG feedback, this might be considered as future work.
5 / Oct 2020	17	Dr Knuckey to examine the historical data for the second trip of each GABFIS, to identify any potential impacts on CVs,	Dr Knuckey	As soon as practicable	This was completed. See GABFIS working group outcomes .

		associated with reducing the GABFIS design to a single trip per survey.			
5 / Oct 2020	18	At their 2021 meeting, GABRAG to consider sensitivities (including the FIS series) for inclusion in the deepwater flathead stock assessment scheduled for 2022.	GABRAG	As soon as practicable	Sensitivities to be included in stock assessments would typically be considered as part of developing the base case, which is scheduled for GABRAG 2022. This item will be closed.
5 / Oct 2020	19	The GABFIS design working group (established at this meeting – Dan Corrie, Ian Knuckey, Miriana Sporcic, Neil MacDonald and Jim Raptis) to meet to determine the operational logistics involved if the GABFIS is re-designed to remove one of the two survey trips.	Working Group	As soon as practicable	This was completed. See GABFIS working group outcomes .
6.3 / Oct 2020	20	GABIA to engage with IMOS to investigate the feasibility of GABT vessels being included as ships of opportunity, for the purpose of collecting environmental data.	GABIA	As soon as practicable	AFMA and GABIA are proposing that a working group is established to review the data collection program in the GABT, which would include collection of environmental data. This action item should be closed, subject to the working group being established and this work being included in the workplan.

Attachment D – Action items arising from the meeting

No.	Agenda Item / Meeting Date	Action Item	Agency / Person	Timeframe
1	3a GABRAG October 2021	Paul Burch to investigate the issue of size grading for Bight redfish crew collected length data and contact industry regarding the outcome (whether to include or exclude data). The results of this are to be reported to the SESSFRAG data or chair's meeting in 2022.	Paul Burch (CSIRO)	SESSFRAG data meeting or SESSFRAG chair's meeting
2	4 GABRAG October 2021	AFMA and GABIA to develop a GAB Data Collection and Sampling Protocol Working Group, and provide a draft plan to the SESSFRAG 2022 data meeting.	AFMA and GABIA	SESSFRAG data meeting
3	5 GABRAG October 2021	Fishwell Consulting and AFMA to work with FAS to identify missing orange roughly zone data for archived orange roughly otoliths.	Fishwell Consulting and AFMA	As soon as practicable