



Australian Government

Australian Fisheries Management Authority

South East Resource Assessment Group (SERAG) Meeting 1 2021

Meeting minutes

28–29 September 2021

Microsoft Teams Meeting

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South East Resource Assessment Group (SERAG) Meeting 1 2021

Meeting 1 – 28–29 September 2021

Agenda

Day 1: 28 September 2021

Time (AEST): 08:30–17:30

Location: Microsoft Teams meeting

Chair Name: Dr Michael Steer

Approximate time	Item	Purpose	Lead presenter
8:30 (15 mins)	Pre-meeting conflicts of interest discussion	For discussion	Chair
8:45 (30 mins)	Agenda item 1. Preliminaries		
	1.1 Acknowledgement of country, introductions and apologies	For noting	Chair
	1.2 Declaration of interests	For noting	Chair
	1.3 Adoption of agenda	For action	Chair
	1.4 Actions items review (all previous action items)	For noting	Chair
9:15 (1.5 hours)	Agenda item 2. Catch histories	For noting	CSIRO
10:45 (15 mins)	Break		
11:00 (30 mins)	Agenda item 3. Data reports	For noting	Paul Burch (CSIRO)
11:30 (1 hour)	Agenda item 4. Cascade TAC advice		
	4.1 Orange Roughy	For advice	Daniel Corrie (AFMA)
	4.2 Smooth Oreodory	For advice	Daniel Corrie (AFMA)
12:30 (30 mins)	Lunch Break		
13:00 (2 hours)	Agenda item 5. Silver warehou		
	5.1 Tier 1 Preliminary Base Case	For noting	Pia Bessell-Browne (CSIRO)
	5.2 Discussion	For advice	Pia Bessell-Browne (CSIRO)
15:00 (15 mins)	Break		
15:15 (1 hour)	Agenda item 6. Redfish Rebuilding Strategy		
	6.1 Annual review	For advice	Daniel Corrie (AFMA)
	6.2 Discussion	For action	Daniel Corrie (AFMA)
16:15 (45 mins)	Agenda Item 7. Non-quota species TAC advice (ECDWT)		

Approximate time	Item	Purpose	Lead presenter
	7.1 Orange roughy	For advice	Daniel Corrie (AFMA)
	7.2 Boarfish	For advice	Daniel Corrie (AFMA)
17:00	End of Day 1		

Day 2: 29 September 2021

Time (AEST): 9:00–17:00

Location: Microsoft Teams meeting

Approximate time	Item	Purpose	Lead presenter
9:00 (2 hours)	Agenda item 8. Orange roughy (east)		
	8.1 Tier 1 Preliminary base case	For noting	Paul Burch (CSIRO)
	8.2 Discussion	For advice	Paul Burch (CSIRO)
	8.3 Discussion: implications of 100% overcatch/undercatch provisions	For advice	Daniel Corrie (AFMA)
10:00 (1 hour)	Agenda item 9. Eastern Gemfish Rebuilding Strategy	For advice	Daniel Corrie (AFMA)
11:00 (15 mins)	Break		
11:15 (2 hours)	Agenda item 10. Pink ling		
	10.1 Tier 1 preliminary base case	For noting	Patrick Cordue (ISL)
	10.2 Discussion	For advice	Patrick Cordue (ISL)
13:15 (30 mins)	Lunch Break		
13:45 (2 hours)	Agenda item 11. ERA for automatic longline		
	11.1 Discussion	For noting	Sally Weekes (AFMA) & Miriana Sporcic (CSIRO)
	11.2 Advice on adopting results	For advice	
15:45 (15 mins)	Break		
16:00 (30 mins)	Other business and action items review	For discussion	Chair
16:30	Close of meeting		

The Chair opened the meeting at 08:45.

Agenda item 1 – Preliminaries

1.1 Welcome and apologies

1. Dr Michael Steer (SARDI¹), 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. SERAG (the RAG) members noted the Acknowledgement of Country, that the meeting was being recorded and commenced proceedings.
3. The RAG noted the current membership, attendees and apologies ([Table 1](#)).

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

Members	Position
Dr Michael Steer	Chair
Dr Ian Knuckey	Scientific member
Dr Geoff Tuck	Scientific member
Mr Andrew Penney	Scientific member
Mr James Woodhams	Scientific member
Dr Sarah Jennings	Scientific (Economics) member
Mr Simon Boag	Industry member
Mr John Jarvis	Industry member
Mr Daniel Hogan	Industry member
Mr Ross Winstanley	Recreational member
Mr Daniel Corrie	AFMA member
Executive Officer	Organisation
Mr Aaron Puckeridge	AFMA
Invited Participants	Organisation
Dr Paul Burch	CSIRO ²
Dr Miriana Sporcic	CSIRO
Dr Pia Bessell-Browne	CSIRO
Dr Robin Thomson	CSIRO
Mr Patrick Cordue	Innovative Solutions Ltd
Dr Geoff Liggins	NSW DPI ³

¹ South Australian Research and Development Institute

² Commonwealth Scientific and Industrial Research Organisation

³ New South Wales Department of Primary Industries

Ms Veronica Silberschneider	NSW DPI
Ms Frances Seaborn	DPIPWE ⁴
Mr Nicholas Hill	CSIRO
Ms Toni Cannard	CSIRO
Dr Jemery Day	CSIRO
Observers	Organisation
Mr Les Scott ⁵	Peter and Una Fishing Co
Dr Daniel Wright	ABARES ⁶
Dr Tim Emery	ABARES
AFMA Attendees	Role
Ms Sally Weekes	AFMA, GHaT ⁷ manager
Ms Fiona Hill	AFMA, Demersal Section Senior Manager
Ms Cate Coddington	AFMA
Ms Heather Johnston	AFMA
Apologies	Role
Mr Daniel Hogan	Industry member
Mr John Jarvis	Industry member
Ms Frances Seaborn	Invited participant, DPIPWE
Dr Robin Thomson	Invited participant, CSIRO

1.2 Declarations of interest

- The RAG members followed the conflict of interest declarations as outlined in [Fisheries Administration Paper 12](#). Members and participants reviewed and updated the Declarations of Interest included at [Attachment A](#).
- The Chair asked attendees to identify if they had any conflicts of interest with specific agenda items ([Table 2](#)).
- The RAG decided that when management advice was being determined, any member with declared conflicts of interest would leave the meeting but remain present during the discussions.

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

Agenda Item	Potential conflicts of interest	Discussion Participation	Recommendation Participation
2. Cascade TAC advice	Mr Simon Boag	Present	Not present for any TAC ⁸ recommendations.
7. Non-quota species TAC advice	Mr Simon Boag	Present	Not present for any TAC recommendations.

⁴ Tasmanian Government Department of Primary Industries, Water and Environment

⁵ Only present for agenda item 10

⁶ Australian Bureau of Agricultural and Resource Economics and Sciences

⁷ Gillnet, Hook and Trap

⁸ Total Allowable Catch

1.3 Adoption of agenda

7. The RAG adopted the [agenda](#) as final.
8. The RAG noted the final minutes of the SERAG meeting 3 of 9–10 December 2020 are available on the [AFMA website](#).

1.4 Actions arising from previous meetings

9. The RAG noted the action items from previous meetings and the updates provided by the Executive Officer at [Attachment B](#).
 - 2020.12 Agenda item 2 – AFMA to continue investigating this action item.
 - 2020.12 Agenda item 4 – To be closed.
 - 2020.12 Agenda item 7 – AFMA to draft a paper for this action item. The default approach is to apply discount factor unless there is explicit evidence that closures or other measures do impact stocks.
 - 2020.10 Agenda item 2 – To be closed.
 - 2020.10 Agenda item 5 – To be closed for SERAG, actioned at SESSFRAG⁹.
 - 2020.10 Agenda item 5 – To be closed. Default time period (1986–1995) to be used for the tier 4 John dory assessment.
 - 2019.12 Agenda item 2 – To be closed.
 - 2019.11 (action item review) – first part complete, second part to be completed.

Agenda item 2 – Catch histories

10. Dr Miriana Sporic (CSIRO) introduced the agenda item, discussing the updated catch histories of various tier 4 SESSF¹⁰ species and their associated updated tier 4 stock assessment outputs. Feedback was requested surrounding decisions made on the catch and discard time series used to inform stock assessments for various species given updated or revised state data, particularly from NSW in collaboration with Dr Geoffrey Liggins from NSW DPI.
11. The RAG noted the following background:
 - Updated catch, discard, and CPUE¹¹ time series were presented to the RAG for comment for stocks including:
 - blue-eye trevalla (*Hyperoglyphe antarctica*) (1997–2020);
 - silver trevally (*Pseudocaranx georgianus*) (1986–2020);
 - John dory (*Zeus faber*) (1986–2020);
 - mirror dory (*Zenopsis nebulosa*) east (1986–2020); and
 - mirror dory west (1986–2020).
 - The RAG discussed the addition of various state and Commonwealth catch data to the time series.
12. The RAG made the following key points:
 - Decisions and changes made to historical time series data should be formally documented so that the justification for these changes can be referred to in the future.
 - A reference period needs to be determined for the John dory tier 4 stock assessment.

⁹ Southern and Eastern Scalefish and Shark Fishery Resource Assessment Group

¹⁰ Southern and Eastern Scalefish and Shark Fishery

¹¹ Catch Per Unit Effort

- MSY¹² catch levels for John dory based on a recent tier 5 stock assessment were comparable to catches taken during the default reference period (1966–1995) prescribed in the SESSF Harvest Strategy.
- There is no justification for a reference period other than the default prescribed in the SESSF Harvest Strategy Framework.
- Uncertainties in historical catch and discard time series remained for these stocks and further work and discussion is required between CSIRO, NSW DPI staff and Dr Kevin Rowling to complete this work. It was also noted that funding and resources would need to be allocated for this to occur.
- Underreporting in AFMA catch records could impact CPUE time series for various SESSF stocks.
- There is an existing SESSFrag action item that will address this issue of updating/revising historical catch and discard time series data.

2.1 Actions and recommendations for agenda item 2

Action item 1: AFMA are to close the action item '2020.10 agenda item 5' regarding John dory. CSIRO (Dr Miriana Sporcic) are to use the default reference period (1986–1995) in the upcoming tier 4 stock assessment of John dory.

Recommendations:

- SERAG accepted the updated tier 4 historical catch, discard, and CPUE time series presented by Dr Miriana Sporcic (CSIRO).

Agenda item 3 – Data reports

13. Dr Paul Burch (CSIRO) introduced this agenda item detailing SESSF data reports for 2021. This presentation focused on changes and additions to the formatting and contents of the data reports along with areas that required feedback from the RAG.

14. The RAG noted the following background:

- New developments to the data reports included:
 - Two new staff joined the CSIRO data team.
 - CSIRO have adopted a revised format for the data reports.
 - Discard data was checked for errors in March and April.
- Issues and concerns raised within the data reports:
 - More vessels were identified as recording incorrect (invariant) depths.
 - Observer coverage was impacted by COVID-19.
 - The definition of orange roughy (*Hoplostethus atlanticus*) zones were updated to be consistent with management boundaries.
 - PIRVIC¹³ pre-1998 data has not been included in the 2021 data reports because it is not yet in the AFMA Data Warehouse.
 - The 2020 SIDaC¹⁴ data is not linked to logbook shot in the AFMA database and is therefore not included in the 2021 data reports.
 - Fish Ageing Services have made corrections to their age database, which changes some historical age estimates.
 - Dr Geoffrey Liggins (NSW DPI) provided alternative NSW State catch data prior to 2009 for stocks assessed this year.

¹² Maximum Sustainable Yield

¹³ Primary Industry Research Victoria

¹⁴ Shark Industry Data Collection Program

15. The RAG made the following key points:
- The RAG supported the outlier check threshold values of 500 kg, or a value of 2 standard deviations from the highest single catch value (whichever is lower), that were used by Dr Paul Burch (CSIRO) to determine outliers.
16. No action items or recommendations were made for this item.

Agenda item 4 – Cascade TAC advice

17. Mr Daniel Corrie (AFMA) introduced the agenda item and asked for the RAG to provide recommendations on the TACs for Cascade Plateau smooth oreo (*Pseudocyttus maculatus*) and orange roughy for the 2022–23 SESSF fishing season. Recent catches and TACs were presented along with previous stock assessment and management advice to provide the RAG with context for this discussion.
18. The RAG noted the following key points on Cascade smooth oreo:
- Cascade Plateau smooth oreo was last assessed in 2010 and the assessment was used to set a TAC of 150 t.
 - The 150 t TAC was set in 2010 on a precautionary basis given the uncertainty and lack of confidence in the outcomes of a tier 4 stock assessment which recommended a much higher TAC of approximately 700 t.
 - There was no new information available from which the RAG could update their advice on smooth oreo TACs.
 - As time increases from the last stock assessment, the suitability of the TAC and management advice becomes more uncertain.
 - There have been no indicators suggesting that the stock is declining. This, combined with low catches suggest that the stock is likely to be sustainable due to low fishing effort.
 - Lowering the smooth oreo TAC could constrain catches and cause scrutiny. The RAG needs updated data and advice so it can make an informed decision on the Cascade smooth oreo TAC.
 - The RAG requested that AFMA capture historical RAG advice and the basis for setting the 150 t TAC for Cascade smooth oreo in species summary reports.
19. The RAG made the following key points on Cascade orange roughy:
- Targeting has increased in the last 2–3 years, with 212 t caught in the 2020–21 season and 266 t caught in the 2021–22 season.
 - Catches were much lower between the 2015–16 and 2019–20 seasons, with only 26 t caught.
 - The last formal stock assessment was undertaken in 2009, which was the basis for the current TAC of 500 t.
20. Dr Tim Ryan and Dr Ryan Downie of CSIRO attended this agenda item and gave a presentation on the history of the previous acoustic surveys, and the hull mounted survey undertaken in 2021 by two trawl vessels.
- There are difficulties and uncertainties associated with getting accurate survey estimates of orange roughy at the Cascade Plateau given changes and limitations in technology and fish schooling behaviour.
 - Another hull mounted survey in 2022 aims to investigate where and when orange roughy spawn at the Cascade Plateau. This survey will inform the sampling design of a more comprehensive AOS¹⁵ survey in 2023.
21. The RAG noted the following:
- A reduced TAC may create a disincentive to fish at the Cascade plateau which could inhibit further data collection.

¹⁵ Acoustic Optical System

- The RAG considers TACs on an annual basis – acoustic biomass estimates and a revised stock assessment are likely 2–3 years away.
- Analysing existing age data from previous surveys would likely provide an additional line of evidence to help inform the RAG’s decision making.
- The short term sustainability risk of a 500 t TAC is low, and would support ongoing data collection.
- The long-term RBC¹⁶ from the 2009 stock assessment was 397 t.

4.1 Actions and recommendations from agenda item 4

Action item 2: AFMA to capture historical RAG advice and the basis for setting the 150 t TAC for Cascade smooth oreo in species summary reports.

Action item 3: AFMA to confirm that Cascade orange roughy otolith ageing is present in the Fish Ageing Services work plan.

Recommendations:

- SERAG recommends the current TAC of 150 t to be rolled over for Cascade smooth oreo for the 2022–23 SESSF fishing season.
- SERAG recommends a TAC of 397 t for Cascade orange roughy for the 2022–23 SESSF fishing season. This TAC is based on the long-term RBC from the 2009 stock assessment and will allow for ongoing catch and data collection to support future stock assessments, including acoustic surveys in 2022 and 2023.
 - SERAG endorses analysing historical Cascade orange roughy acoustic survey and assessment work.
 - SERAG endorses undertaking a 2023 acoustic survey.
 - SERAG are to consider an analysis of Cascade Plateau benthic survey data for inclusion in the 2023–24 SESSFRAG research plan.

Agenda item 5 – Silver warehou

22. Dr Pia Bessell-Browne (CSIRO) introduced the agenda item and asked for the RAG to consider the preliminary tier 1 base case stock assessment for silver warehou (*Seriolella punctata*) and provide advice on a final base case to be presented at SERAG 3 which will be used to determine the RBC for the 2022–23 SESSF fishing season.

23. The RAG noted the following background:

- The silver warehou tier 1 stock assessment was last conducted in 2018.
- Subject to RAG advice, the final stock assessment will be presented at SERAG 3 in November 2021 and will be used to provide RBC advice for the 2022–23 SESSF fishing season.
- Updated data inputs including catch, discards, lengths and ages were contrasted with data from the previous stock assessment.
- Stock assessment structure and key parameters were presented (e.g. single stock, two fleets, grouped sex model).
- The 2021 stock assessment estimates that the current (2021) spawning stock biomass is 35 per cent of B₀¹⁷ (projected under average recruitment and assuming 2020 catches in 2021), and is

¹⁶ Recommended Biological Catch

¹⁷ Virgin biomass

projected to be 42 per cent in 2021, compared to 31 per cent at the start of 2019 from the 2018 assessment.

- An additional bridging step was included to remove the two most recent recruitment deviations (addressing a known retrospective pattern in estimation). An extra time-block on retention from 2018 onwards for the east trawl fleet was also included to allow the model to fit the dramatic increase in discard estimates.
- Removing estimation of the 2016 and 2017 recruitment deviations had no impact in the estimation of stock status. The new retention time block improved the model fits to CPUE in the east and increased the estimates of absolute and relative biomass towards the end of the series. Model fits to discard data are improved for recent years.
- The increase in stock status at the end of the series, with in 2021 assumed to be the same as those in 2020, was discussed by the RAG. This projected biomass estimate is not constrained by data inputs, most notably CPUE, and may be an overoptimistic representation of recovery.
- Dr Pia Bessell-Browne (CSIRO) noted that the model struggled to fit to the recent increase in estimated discards, and requested feedback from the RAG as to what is driving this increase in discarding.

24. The RAG made the following key points:

- The assessment estimated a larger variance in older ages than is estimated by the ageing error but it was noted that this is a common issue as ageing error increases as fish become older.
- The RAG discussed whether average recruitment should be used in forward projections for calculating management advice for 2022 and beyond given that recruitment has been below average for the most recent 12 years.
- The RAG recommended exploring a low recruitment scenario.

5.1 Actions and recommendations from agenda item 5

Recommendations:

- SERAG approved the revised 'Bridge 3' as the base case to be used to provide RBC advice at SERAG 3, and requested that fixed catch projections are provided under a low recruitment scenario (using the average of recruitment deviations from 2011– 2015) and fixed catch projections using the RBC produced from the harvest control rule, 450 t as the current TAC, and three or four steps in between.
- The SESSF Species Summary document will also be updated to capture key points and recommendations from this meeting, and will be included with the minutes for SERAG 3.

Agenda item 6 – Redfish Rebuilding Strategy

25. Mr Daniel Corrie (AFMA) introduced the agenda item by updating the RAG on the Redfish Rebuilding Strategy based on findings of the targeting and bycatch analysis. Ms Toni Cannard (CSIRO) presented the 2021 targeting analysis of redfish (*Centroberyx affinis*) for the RAG's consideration.

26. The RAG noted the following background:

- The redfish stock assessment was last undertaken in 2020 and estimated biomass to be at 3.7 per cent of B_0 .
- The current bycatch TAC and discards are lower than levels that the model indicated should allow for recovery.
- Ms Toni Cannard (CSIRO) presented the 2021 redfish targeting analysis. Catch trends were presented by various factors including year, month, vessel, depth, and area to explore any persistent trends or evidence of targeting.
- Catches in recent years have ranged from 25–47 t.

- It was noted that one vessel had caught the largest amount of redfish of any vessel in the fishery since 2011.

27. Noting updates to the Redfish Rebuilding Strategy, Mr Daniel Corrie (AFMA) asked the RAG for advice on the annual review, targeting analysis and monitoring of the rebuilding strategy.

28. The RAG made the following key points:

- The RAG needs further information so it can understand whether the non-recovery of redfish may be affected by 10–20 t of catch.
- ABARES use the tier 1 stock assessment model estimates of discards to assess total fishing mortality of redfish.
- Results presented in the analysis may include Bight redfish (*Centroberyx gerrardi*) catch from GABT¹⁸, making it difficult for the RAG to give accurate management advice.
- In evaluating the discards component of redfish catch, it is pertinent to compare model discard estimates with observer data. This will help determine if the model projections are plausible and whether the management settings in the redfish rebuilding strategy are appropriate. Observed discard estimates are consistently higher than modelled estimates.
- AFMA should consider what management action could be taken if discarding was considered to be too high as reducing the TAC would likely only further increase discarding.

6.1 Actions and recommendations from agenda item 6

Action item 4: AFMA to interrogate data from those vessels that have increased redfish catch in recent years in collaboration with Dr Paul Burch (CSIRO). This could include developing a statistic or a plot that captures vessels returning to locations of high redfish bycatch.

Action item 5: AFMA to investigate recent redfish catch records as the eastern redfish targeting analysis appears to incorporate GABT Bight redfish catches.

29. The RAG recommended that all GABT logbook catches reported as eastern redfish should be excluded from the analysis as they are almost certainly Bight redfish.

30. The RAG did not recommend any changes to the Redfish Rebuilding Strategy.

Agenda item 7 – Non-quota species TAC advice (ECDWT)

31. Mr Daniel Corrie (AFMA) introduced agenda item 7 and asked the RAG to recommend a catch trigger for boarfish (Pentacerotidae) and an incidental catch trigger for orange roughy in the 2022–23 SESSF fishing season.

32. The RAG noted the following:

- There has been very little catch and effort in the ECDWT¹⁹ sector in recent years.
- It is difficult to make informed decisions for these stocks given a lack of information, and it is unclear what the basis for the current catch limits are.

7.1 Actions and recommendations from agenda item 7

Action item 6: AFMA to compile a report detailing the history and decision making used to set previous catch triggers and TACs for the non-quota species of ECDWT for SERAG 2022.

Recommendations:

¹⁸ Great Australian Bight Trawl

¹⁹ East Coast Deepwater Trawl

33. SERAG supported maintaining the current bycatch TAC for orange roughy at 50 t, and the catch trigger for boarfish at 150 t.

Agenda item 8 – Orange roughy (east)

34. Dr Paul Burch (CSIRO) introduced the agenda item and provided an overview of the preliminary tier 1 base case assessment for orange roughy. This agenda item has been postponed, and a formal review of the base case will be considered at SERAG 2.

35. The RAG noted the following key points:

- Orange roughy (east) was last subject to a stock assessment in 2017.
- A working group was established to explore how to estimate natural mortality given uncertainties from previous stock assessments. The updated stock assessment successfully estimated natural mortality using an informative prior developed from New Zealand orange roughy assessments.
- Three preliminary base-case assessments with 80, 100 and 120 age-classes were explored.
- The number of age-classes used in the assessment impacted the estimate of natural mortality and hence the productivity of the stock.
- Dr Paul Burch (CSIRO) will contact Dr Matt Dunn at NIWA²⁰ to discuss the choice of the number of age-classes in the assessment and the implications of estimating natural mortality.

8.1 Implications of overcatch/undercatch provisions

36. Mr Daniel Corrie (AFMA) introduced this item and asked the RAG to consider and provide advice to AFMA on scientific justifications that underpin overcatch/undercatch provisions as a management tool for orange roughy.

- Mr Daniel Corrie (AFMA) presented data on the recent history of the orange roughy fishery including catches and using undercatch provisions.
- Previous RAG advice was that using undercatch would be unlikely to impact the sustainability of the orange roughy stock given its life history characteristics.
- If the RBC were to reduce substantially on the basis of an updated stock assessment, the implications of using the previous season's undercatch should be considered.

37. Mr Simon Boag (SETFIA²¹) wrote to AFMA's CEO²² in September 2021 outlining the value of overcatch/undercatch provisions. The RAG noted that the following points were outlined in the letter:

- When commercial fishing was reopened on the orange roughy (east) stock it was identified that over catching quota and discarding fish were risks.
- Overcatch/undercatch provisions are a part of an important collection of management arrangements which allow the orange roughy (east) stock to be viably fished with minimal discarding. These provisions also offer some incentive for operators to forego fishing for orange roughy while AOS surveys are underway.

38. The RAG noted the following key points:

- Eastern orange roughy TACs and catch has increased in recent years, and undercatch provisions are being used more.
- Industry were of the view that the justifications for implementing 100 per cent undercatch have not changed and the flexibility afforded to industry is important. If removed, operators may no longer be able to viably fish this stock.

²⁰ New Zealand National Institute of Water and Atmospheric Research

²¹ South East Trawl Fishing Industry Association

²² Chief Executive Officer

- The RAG supported a proposal to account for the expected eastern orange roughy undercatch, and the implications for stock status, by including it in the RBC recommendation produced by the stock assessment.

8.2 Actions and recommendations from agenda item 8

Action item 7: Dr Paul Burch (CSIRO) to produce a background paper that discusses the implications of over/undercatch provisions on orange roughy (east) and will explore their incorporation into the current stock assessment and their impacts on upcoming RBC advice.

Agenda item 9 – Eastern Gemfish Rebuilding Strategy

39. Mr Daniel Corrie (AFMA) introduced the agenda item and asked the RAG to consider the 2021 targeting analysis and catch and effort data as part of the Eastern Gemfish Rebuilding Strategy review and whether any component of the rebuilding strategy required further consideration.

40. The RAG noted the following key points:

- Recent trends in catch and effort were presented and broken down by various factors including month, area, depth, gear etc.
- Eastern gemfish (*Rexea solandri*) are primarily taken as bycatch while fishers are targeting pink ling (*Genypterus blacodes*) and blue grenadier (*Macruronus novaezelandiae*).
- Operators no longer target the spawning aggregation, and the CPUE index is no longer a reliable index of abundance.
- No clear evidence of targeting was apparent in the trawl fishery with similar levels of catch in 2019 and 2020 across the fleet.
- There was an increase in catch in the hook sector with 20 t caught. It was noted this was still a low overall level of catch, and overall catches are still within the bycatch TAC.
- NSW state catch has been consistent at approximately 2 t in recent years.
- Recent otolith and length samples have not been analysed, so there is little information with which to understand recruitment levels. Otoliths need to be aged for the next assessment in 2022, noting very few otoliths were collected in 2019/2020 due to COVID-19 and low observer coverage.
- The most recent eastern gemfish stock assessment was undertaken in 2010, and therefore current biomass is highly uncertain.
- The current bycatch TAC is set at 100 t, but this does not include discards. Current mortality in recent years has ranged from 80–120 t when incorporating discard estimates.
- The 2010 stock assessment assumed zero catch and discards in its forward projections when estimating recovery timelines.
- The RAG noted that an updated stock assessment, or similar information, was required to make informed decisions about the current status and recovery of eastern gemfish.
- No significant changes to the eastern gemfish recovery plan were suggested.

9.1 Actions and recommendations of agenda item 9

- SERAG suggested undertaking an updated stock assessment of eastern gemfish prior to reviewing and updating the rebuilding strategy.
- In future targeting analyses, CSIRO could present vessel bubble plots of hook vessels reporting eastern gemfish catches, noting there are a small number of vessels and this plot may be suppressed for the public version of the document.
- The RAG did not recommend any changes to the Eastern Gemfish Rebuilding Strategy.

Action item 8: AFMA and CSIRO to produce a background paper summarising the outputs of the 2010 eastern gemfish stock assessment, including how the model considers discards and how this informs current management advice relative to the status of eastern gemfish.

Agenda item 10 – Pink ling

41. Mr Patrick Cordue introduced agenda item 10 and asked the RAG to consider the tier 1 preliminary base case stock assessments for pink ling (east and west).

42. The RAG noted the following background:

- Mr Patrick Cordue presented updated data inputs including catch, effort, ages and lengths and the model structure to the RAG for both eastern and western pink ling.
- The 2021 pink ling stock assessment is an update of the stock assessment undertaken in 2018 with the model structure largely unchanged.
- The influence of catch restrictions on the eastern CPUE indices is highly uncertain.

East

- A comparison of trawl CPUE series across the last four stock assessments shows a similar trend, with eastern CPUE trending upwards.
- Adding a latitude effect to the CPUE series depresses the series, driven by lower catch rates in the northern latitudes – there has been a southerly shift in the eastern trawl catches over time.
- MPD²³ estimates are primarily presented for diagnostic purposes, whereas the results of the MCMC²⁴ runs are used as a basis for management advice. Eastern MPD runs estimate relative biomass ranging from 29 per cent B_0 to 33 per cent B_0 based on the addition of data since the 2018 stock assessment with fixed value of M^{25} (0.23). Estimates of relative spawning biomass are highly dependent on values of M , and range from 22 per cent B_0 to 36 per cent B_0 under high (0.26) and low (0.2) values of M .
- Model fits to the eastern trawl CPUE, length frequencies and FIS²⁶ indices (5 years) are very good.

West

- A comparison of trawl CPUE series across the last four stock assessments shows a similar trend, with western CPUE trending upwards.
- Adding an hours (duration) effect to the CPUE series depresses the series, driven by an increase in the median tow duration over time – catch per shot is used to calculate CPUE, so the model needs to correct for higher catches but longer tows.
- Western MPD runs estimate relative biomass ranging from 78 per cent B_0 to 93 per cent B_0 based on the addition of data since the 2018 stock assessment with a fixed value of M (0.23). Estimates of relative spawning biomass are highly dependent on values of M , and range from 71 per cent B_0 to 95 per cent B_0 under high (0.26) and low (0.2) values of M .
- Model fits to trawl CPUE are good in the later part of the time series. Model fits to FIS and trawl length frequencies are also good, but less so for the FIS indices.
- There is a 'spike' in fish around 90–95cm in 2018 which the model cannot fit.

43. The RAG noted the following key points:

- The RAG agreed to use 0.23 as the value of M for eastern pink ling.

²³ Maximum Posterior Density

²⁴ Markov chain Monte Carlo

²⁵ Natural Mortality

²⁶ Fishery Independent Survey

- Port length data is not used because they cannot be linked to depth. Mr Daniel Corrie (AFMA) noted that SESSFRAG already have an action item looking to review port sampling protocols for the SESSF.
- Presenting consistent stock assessment diagnostics would assist the RAG’s members to review stock assessment advice.
- Dr Pia Bessell-Browne (CSIRO) noted that investigating length data aggregated by month could help to inform representativeness of the data.

10.1 Actions and recommendations of agenda item 10

Action item 9: CSIRO, AFMA, and Mr Patrick Cordue to discuss and decide on what diagnostics should be provided/produced as outputs for stock assessments going forward, and for pink ling CPUE in particular.

Action item 10: Mr Daniel Corrie (AFMA) to talk with Mr Patrick Cordue to discuss catch projections based on MCMC outcomes for both high and low natural mortality (M) scenarios. Also, to incorporate monthly length sample summaries.

- SERAG supported the proposed base case models and recommended that the eastern model uses a value of M fixed at the estimate from the western base case MCMC model.
- The SESSF Species Summary document will be updated to capture key assessment outputs and recommendations from this meeting, and will be included with the minutes for SERAG 3.

Agenda item 11 – ERA for automatic longline

44. Ms Sally Weekes (AFMA) and Dr Miriana Sporcic (CSIRO) introduced the agenda item and provided an update on the revised ERA²⁷ for the automatic longline sub-fishery of the GHaT sector of the SESSF.

45. The RAG noted the following key points:

- A fishery description was presented to provide a broad overview of the ERA including characteristics such as:
 - area fished;
 - depth fished;
 - gears used;
 - fleets; and
 - discard rates.
- Ecological units to be assessed were presented including target, bycatch and habitats.
- A level 1 SICA²⁸ was undertaken.
- No high risks were identified for any components, except habitats which are not able to be assessed at a higher level, from internal activities but the external activities of other fisheries and coastal development did have significant impacts on all or one ecological component, respectively.
- Regarding habitats, the majority of sets were in the Tasmanian bioregion between 200–700 m but effort occurs on the broader spatial scale. Some faunal groups in these depths will take a long time to recover but given the narrow footprint of the gear and intensive, localised fishing effects, this gear is considered moderate risk. However, if this gear is used more intensively in areas of high ecological importance or risk, they could have a higher impact on the vulnerable assemblages in those areas.

²⁷ Ecological Risk Assessment

²⁸ Scale, Intensity Consequence Assessment

46. The RAG acknowledged that the risk ratings for this fishery had improved since the last ERA given improved management via instruments like bycatch reduction devices and tori lines.

47. The revised ERA was endorsed by the RAG.

11.1 Actions and recommendations from agenda item 11

Recommendations:

- SERAG adopts the ERA for the scalefish automatic longline sub-sector of the SESSF, 2015–2019.

Agenda Item 12 – Other business and action items review

48. Mr Daniel Corrie (AFMA) introduced an item requesting feedback from the RAG discussing the use of available funds (previously earmarked for the 2021 eastern gemfish survey) to synthesize available data for non-eastern orange roughy stocks to inform possible future stock assessment approaches for these stocks.

- The RAG endorsed using these funds noting that the eastern gemfish stock assessment is now scheduled for 2023.
- The RAG noted that the FishPath tool could be useful to help inform viable stock assessment approaches for these orange roughy stocks.

49. Ms Fiona Hill (AFMA) introduced an item requesting feedback from the RAG on effort creep in the SESSF and whether it could be accounted for in stock assessments.

- Mr Andrew Penney noted that effort creep is hard to calculate and would vary across fleets, gears and even vessels. It would need to be carefully considered.
- The RAG noted that Dr Ian Knuckey published a chapter on effort creep in the SESSF Declining Indicators report.
- RAG members also noted that some technologies have improved that would influence effort creep, but that others like vessel age and skipper experience would have declined.

12.1 Actions and recommendations from other business

Action item 11: Ms Fiona Hill (AFMA) to produce a paper outlining a research priority for a pilot study on effort creep in the SESSF to be presented at SERAG 3.

Close of meeting

50. The Chair thanked the RAG for their contribution and closed the meeting at 16:00.

Attachment A – Register of interest

Name	Membership	Declared interests
Dr Michael Steer	Chair	A/Research Director SARDI Aquatic Sciences Chair of SERAG Member of SEMAC ²⁹ Member of SESSFRAG No pecuniary interest in the SESSF.
Mr Daniel Corrie	AFMA member	Employed by AFMA. Manager of South-East Trawl and GABT sectors. No pecuniary or other interest in the SESSF.
Dr Sarah Jennings	Economics member	Economics member on SERAG, SESSFRAG and SEMAC. Economics coordinator, FRDC ³⁰ Human Dimensions Research Subprogram. Member of AFMA Economics Working Group. Adjunct Senior Researcher, TSBE ³¹ , University of Tasmania. Casual employee, IMAS ³² , University of Tasmania. Independent economics consultant. No pecuniary or other interest.
Dr Geoff Tuck	Scientific member	Employed by CSIRO and involved in stock assessments. Interest in obtaining funding for future research. Principal investigator on SESSF stock assessment project.
Mr Andrew Penney	Scientific member	Director of Pisces Australis Pty Ltd, an Australian registered marine/coastal research and management consultancy based in Canberra - interests in any opportunities in this regard. Currently Principal Investigator on FRDC Projects Nos 2017-180: Design and implementation of an Australian National Bycatch Report: Phase 1 – Scoping; and 2019-036: Implementation of dynamic reference points and harvest strategies to account for environmentally-driven changes in productivity in Australian fisheries. Independent scientific member on the AFMA SERAG, the Tropical Rock Lobster RAG and the

²⁹ South East Management Advisory Committee

³⁰ Fisheries Research and Development Corporation

³¹ Tasmanian School of Business and Economics

³² Institute for Marine and Antarctic Studies

		<p>Small Pelagic Fishery RAG. Member of the AFMA ERA Technical Working Group.</p> <p>Deputy Scientific Member on the New South Wales Fisheries Total Allowable Fishing Committee Sep 2020 to Sep 2023.</p> <p>No shareholding and hold no positions relating to any other companies, including any fishing companies or industry associations.</p>
Dr Ian Knuckey	Scientific member	<p>Positions:</p> <p>Director – Fishwell Consulting Pty Ltd</p> <p>Director – Olrac Australia (Electronic logbooks)</p> <p>Deputy Chair – Victorian Marine and Coastal Council</p> <p>Chair – Northern Prawn Fishery Resource Assessment Group</p> <p>Chair – Tropical Rock Lobster Resource Assessment Group</p> <p>Chair – Victorian Rock Lobster and Giant Crab Assessment Group</p> <p>Chair – Victorian Central Zone Abalone Fisheries Resource Advisory Group</p> <p>Chair – Gulf of St Vincent’s Prawn Fishery MAC Research Scientific Committee</p> <p>Scientific Member – Northern Prawn Management Advisory Committee</p> <p>Scientific Member – SESSF Shark Resource Assessment Group</p> <p>Scientific Member – SESSF Great Australian Bight Resource Assessment Group</p> <p>Scientific Member – Gulf of St Vincent’s Prawn Fishery Management Advisory Committee</p> <p>Scientific Member – Tropical Tuna Resource Assessment Group</p> <p>Scientific Member – SESSF Resource Assessment Group</p> <p>Current projects:</p> <p>FRDC 2019-027 Improving and promoting fish-trawl selectivity in the SESSF and GABTS</p> <p>FRDC 2019-072 A survey to detect change in Danish Seine catch rates of Flathead and School Whiting resulting from CGG seismic exploration.</p> <p>FRDC 2019-129 Potential transition of shark gillnet boats to longline fishing in Bass Strait - ecological, cross-sectoral, and economic implications</p> <p>FRDC 2017-069 Indigenous Capacity Building</p>

		<p>FRDC 2016-116 5-year RD&E³³ Plan for NT fisheries and aquaculture</p> <p>FRDC 2018-021 Development and evaluation of SESSF multi-species harvest strategies</p> <p>FRDC 2017-014 Informing structural reform of South Australia's Marine Scalefish Fishery</p> <p>AFMA 2020/0807 Bass Strait Scallop Fishery Survey – 2020-22</p> <p>Traffic Project Shark Product Traceability</p> <p>NT Fisheries Design and implementation of a tropical snapper trawl survey</p> <p>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</p> <p>Australia Bay Information to support Wildlife Trade Operation for the Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery</p> <p>Tas. Abalone Scientific Advisor for Tasmanian Abalone Council Ltd</p> <p>PEMSEA³⁴ Developing EAFM³⁵ Plan of Red Snapper for Arafura and Timor Seas Region</p>
Mr Ross Winstanley	Recreational member	No pecuniary interest in SESSF however declares he has a brother-in-law that holds a Victorian Inshore Trawl Licence.
Mr John Jarvis	Industry member	<p>Commonwealth Trawl Sector boat and quota SFR holder.</p> <p>Member of SETFIA.</p> <p>Worked with NSW Primary Industry Minister for Comfish.</p>
Mr Simon Boag	Industry member	<p>Runs a fisheries consulting firm Atlantis Fisheries Consulting Group. Clients include associations such as SETFIA, SSIA³⁶, SPFIA³⁷ but also other private clients. SSIA was engaged by AFMA to collect biological data in the shark fishery.</p> <p>Non-beneficiary Director of two fishing companies in the SESSF one of which is a significant quota owner.</p> <p>Industry member on SERAG and SEMAC.</p> <p>Member (Chair) of Seine and Trawl Advisory Group (STAG).</p>

³³ Research Development and Extension

³⁴ Partnerships in Environmental Management for the Seas of East Asia

³⁵ Ecosystem Approach for Fisheries Management

³⁶ Southern Shark Industry Alliance

³⁷ Small Pelagic Fishery Industry Association

Mr Aaron Puckeridge	Executive officer	Employed by AFMA. No interest, pecuniary or otherwise.
Dr Robin Thomson	Invited participant	CSIRO, assessment Scientist. Acquiring funding for research purposes.
Dr Miriana Sporcic	Invited participant	CSIRO, Assessment Scientist. Acquiring funding for research purposes.
Dr Jemery Day	Invited participant	CSIRO, Assessment Scientist. Acquiring funding for research purposes.
Dr Paul Burch	Invited participant	CSIRO, Assessment Scientist. Acquiring funding for research purposes.
Dr Pia Bessell-Browne	Invited participant	CSIRO Assessment Scientist. Acquiring funding for research purposes.
Dr Geoff Liggins	Invited participant	NSW DPI, Fisheries Scientist. Potential conflict of interest if co-operative research or assessment work involving NSW is being considered.
Mr Nick Hill	Invited participant and minute taker	Employed by CSIRO and AFMA contractor taking minutes for SERAG 1-3. Acquiring funding for research purposes.
Mr Patrick Cordue	Invited participant	Principle Scientist at Innovative Solutions Ltd. No interest, pecuniary or otherwise.
Ms Veronica Silberschneider	Invited participant	NSW DPI Senior Fisheries Manager. Representative of state jurisdiction / potential competing interests regarding research priorities and management actions affecting NSW fisheries. No pecuniary interests.
Ms Frances Seaborn	Invited participant	DPIPWE Senior Fisheries Management Officer. No interest, pecuniary or otherwise.
Ms Toni Cannard	Invited participant	CSIRO Coastal Ecologist. Acquiring funding for research purposes.
Mr Les Scott	Observer	CEO Peter and Una Fishing Co Pty Ltd which holds various fishing rights and operates a longline vessel in the GHaT fishery/Coral sea and High Seas fishery. Pecuniary interests are limited to the extent of being an employee of the company. Neither myself, nor the company I represent, are aware of or are involved in litigation with AFMA.

Daniel Wright	Observer	Employed by ABARES. No interest, pecuniary or otherwise.
Ms Fiona Hill	AFMA attendee	Employed by AFMA, Senior Manager of the Demersal and Midwater Fisheries. No interest, pecuniary or otherwise.
Ms Sally Weekes	AFMA attendee	Employed by AFMA as the manager of the Gillnet Hook and Trap sector. No interest, pecuniary or otherwise.
Ms Heather Johnston	AFMA attendee	Employed by AFMA. No interest, pecuniary or otherwise.
Ms Cate Coddington	AFMA attendee	Employed by AFMA. No interest, pecuniary or otherwise.

Attachment B – Action Items

Complete/Redundant

Underway

Yet to start

Needs further advice

	Meeting and Agenda Item	No.	Description	Responsibility	Timeframe	Status update
	2020.12 Agenda Item 1	1	Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) to table an item at the 'ISMP ³⁸ tier 4 sampling targets working group' to consider sampling protocols for port-based sampling given observed differences between port-based and onboard length-frequency samples in school whiting. To be completed by January 2021.	Paul Burch and Daniel Corrie	By January 2021	The working group considered the difference between port based and onboard length frequencies and could not resolve the difference. AFMA through SESSFRAG will monitor annual summaries of port and onboard length frequencies to determine if this is an ongoing issue. This has been referred to SESSFRAG and can be closed.
	2020.12 Agenda Item 1	2	Action item 2 from SERAG 2019 meeting to be updated to incorporate the following. "Partial and total lengths were collected during Automatic long line trial in Bass Strait and were used to inform the 2020 gummy shark stock assessment. SharkRAG will review the ongoing need for this data at a data workshop in Feb 2021, and build into SIDAC if required."	AFMA	By February 2021	SharkRAG considered this at its March 2021 meeting and a one off sample collection has been included in the SESSF data plan and will be incorporated into the SIDAC sampling program. This action can be closed.
	2020.12 Agenda Item 2	3	AFMA to investigate the peak of 24 cm fish in the 2018 trawl onboard length data for school whiting.	AFMA	By SESSFRAG Data Meeting (August 2021)	The peak of 24cm fish in 2018 is not apparent in the 2021 Data Summary report (see Appendix A). The AFMA observer program have confirmed that onboard sampling is done randomly. SESSFRAG will review length frequency data prior to the next assessment.

³⁸ Integrated Scientific Monitoring Program

	2020.12 Agenda Item 2	4	SESSFRAG to consider updating the 'TAC setting and assessment guidelines' document to include priorities for undertaking sensitivities, likelihood profiles, retrospectives etc. by SESSFRAG 2021 Data meeting.	AFMA (refer to SESSFRAG)	By SESSFRAG Data Meeting (August 2021)	The document was revised at SESSFRAG in August 2021 to incorporate guidance on timing for provision of data. Guidance on including sensitivities, retrospectives, likelihood profiles etc has not yet been considered. This will be postponed until the SESSFRAG Chair's meeting in March 2022.
	2020.12 Agenda Item 3	5	<p>Daniel Corrie (AFMA) and Dr. Michael Steer (Chair), to draft a letter to the AFMA Commission for its March 2021 meeting on behalf of SERAG (and to be endorsed by SERAG) expressing its concern around:</p> <ul style="list-style-type: none"> - the difficulty of disentangling environmental changes, recruitment failure and fishing mortality as reasons for several depleted stocks failure to rebuild. - the increasing number of SESSF quota species assessed as declining. 	Mike Steer and Daniel Corrie	By March 2021	Letter was submitted as part of the TAC recommendations paper in March 2021. AFMA will provide a letter once the Commission have responded.
	2020.12 Agenda Item 3	6	As part of the Blue Warehouse Rebuilding Strategy review, AFMA to clarify the process and evidence (i.e. stock assessments or other indicators) used to inform the original rebuilding timeframes and bycatch TACs.	AFMA	As part of the rebuilding strategy review.	<p>The rebuilding timeframe was based on the known biology of the species at the time and the bycatch TAC was based on a targeting and companion species analysis which provided an estimate of unavoidable bycatch.</p> <p>Under the revised rebuilding strategy, AFMA have reduced the bycatch TAC based on an updated targeting and companion species analysis. The rebuilding timeframe has been maintained (2024) and AFMA are seeking advice and considering options for how to redefine rebuilding timeframes for species that have not recovered.</p>

2020.12 Agenda Item 4	7	Dr. Miriana Sporcic (CSIRO) to explore available eastern gemfish CPUE standardisations in time for the August 2021 Data meeting.	Miriana Sporcic (CSIRO)	By SESSFRAG Data Meeting (August 2021)	Redundant - refer to Action Item 8 (2020.12 Agenda Item 4). Item can be closed after meeting.
2020.12 Agenda Item 4	8	AFMA/CSIRO to consult with Dr. Rich Little with regards to incorporating non-spawning gemfish CPUE as an alternative primary index abundance in the 2021 eastern gemfish stock assessment. Update to be provided to SERAG out of session.	AFMA and CSIRO	By SESSFRAG Data Meeting (August 2021)	The eastern gemfish stock assessment has been postponed to 2022. Dr Little advised that non-spawning CPUE is already included in the assessment and there is no other series that could be incorporated as an index. This item can be closed after meeting.
2020.12 Agenda Item 6	9	Dr. Miriana Sporcic (CSIRO) to work in collaboration with Geoffrey Liggins (NSW DPI) to develop a preliminary historical catch time series for offshore ocean perch. It should be noted that the early-period catch history may require further validation before an agreed series can be reached.	Miriana Sporcic (CSIRO) and Geoff Liggins (NSW DPI)	By next tier 4 assessment (2023)	This will be progressed during 2022. Keep open until completed.
2020.12 Agenda Item 7	10	AFMA to draft a paper detailing the evidence used to justify not applying default discount factors for tier 4 species due to protection afforded by deepwater closures. To be completed in time for SERAG 2021.	AFMA	By SERAG 2021	AFMA have not prepared this paper for SERAG. Discount factors will be applied as a default and will only not be applied where there is strong evidence that sufficient protection is afforded. This action will be closed after the meeting.
2020.12 Agenda Item 7	11	AFMA to provide the evidence base for orca depredation being used to exclude the use of discount factors in blue-eye trevalla tier 4 stock assessments.	AFMA	By SESSFRAG Data Meeting (August 2021)	This has been added to agenda for SERAG 2.
2020.12 Agenda Item 8	12	AFMA to distribute the paper for 'Agenda Item 8 – hagfish research plan' to all attendees at SERAG 2.2, including observers.	AFMA	As soon as possible	Completed.

2020.11 Agenda Item 4	13	Dr. Miriana Sporcic (CSIRO) to produce standardised CPUE for John Dory for zones 10, 20 and if possible, zone 30 as a potential indicator of range shift. To be presented at SESSFRAG data meeting 2021.	CSIRO (Miriana Sporcic)	By SESSFRAG Data Meeting (Aug 2021)	Dr Sporcic advised there is insufficient catch in zone 30 to complete a CPUE standardisation. SESSFRAG in August 2021 recommended that the tier 4 should use standardized CPUE from Zone 10 and 20 only.
2020.11 Agenda Item 6	14	An agenda item is to be tabled at the time of the next assessment to discuss the implications of 100% overcatch/undercatch provisions for orange roughy and the scientific justifications underpinning these for SERAG#1 2021.	AFMA	By SERAG 1, 2020	To be considered by SERAG when providing RBC advice for orange roughy east. Added to agenda for SERAG 1 (2021). Item can be closed after meeting.
2020.11 Agenda Item 6	15	Dr. Paul Burch (CSIRO) and the orange roughy steering committee to produce a document outlining assessment options, including data requirements and metrics, for orange roughy stocks, with a view to demonstrating recovery.	CSIRO (Paul Burch)	By August 2021	This work is underway, however the eastern roughy stock assessment has taken priority. Dr Burch has run western orange roughy through FishPath and it supports data collection for the development of a tier 1 or 2 assessment. AFMA will work with CSIRO to develop a document subject to resourcing availability. This includes updating the WORRP ³⁹ to include guidance on how the data collected under the program can be used to inform future management decisions – include likely timeframes and metrics.
2020.11 Agenda Item 8	16	AFMA to identify a standard minimum set of stock assessment diagnostics and provide these (a) in the ARC feedback form for the 2021 pink ling stock assessment, and (b) as part of future research calls for stock assessments in the SESSF.	AFMA	To be provided to P Cordue for the 2021 stock assessment. To be included in future calls for research.	The ARC were provided with general feedback from SERAG and Patrick Cordue was provided with more specific requests for diagnostics once the research has been approved. AFMA will consider including the guidance in future calls for research.

³⁹ Western Orange Roughy Research Plan

	2020.10 Agenda item 1.4	17	AFMA to invite a representative from the Department of Agriculture, Water and Environment (DAWE) to SERAG#1 2021 to inform and discuss the process of delisting a conservation dependent species.	AFMA (Daniel Corrie)	By SESSFRAG or SERAG 2021	AFMA have contacted DAWE and are waiting on a response.
	2020.10 Agenda item 2	18	Dr. Paul Burch (CSIRO) to undertake retrospective analysis on catch from 2016–2018 to determine the impact of the discard estimation error where the error resulted in a change of 5% or more in catch. Provide information discerning if this has impacted management advice and resultant RBCs and quotas for anglers.	CSIRO (Paul Burch)	As soon as practical	<p>In early 2021, Dr Burch provided a summary response to AFMA which indicated that for most species groups in most years, there was either no change or only a small decline in discard estimates. Table 1 in CSIRO’s analysis (Attachment A to this paper) shows species groups with revised estimates greater than 5% and Table 3 shows the difference for these species groups.</p> <p>For all species other than pink ling east, the changes were either minimal and/or resulted in a reduction to the estimate of discards – which means there were no sustainability issues as a result.</p> <p>Stock assessments have been updated, or will be updated in 2021, for all species impacted other than gemfish (west), smooth oreo (non-cascade) and blue warehou (east) and revised RBCs will take account of revised discard estimates.</p> <p>Discards for smooth oreo (non-cascade) are very low and are not deducted from the TAC,</p>

						<p>which is set based on a weight of evidence approach.</p> <p>The revised discard estimates for blue warehou will be considered when reviewing the rebuilding strategy in 2021.</p> <p>This item can be closed after meeting.</p>
2020.10 Agenda item 2	19	AFMA to compare logbook discard records of deepwater flathead and bight redfish in the GABT against observer records to determine their accuracy.	AFMA	By SESSFRAG Data meeting (Aug 2021)	Not yet started, will be scheduled for 2022.	
2020.10 Agenda item 3	20	Daniel Corrie (AFMA) to investigate the possible grading of school whiting catches at some ports which may be influencing the port-based size frequency distributions being input into the stock assessment. To be completed in time for SERAG 2.2.	AFMA (Daniel Corrie)	By SERAG #2.2 (Dec 2020)	<p>Refer to Appendix A.</p> <p>Standard sampling protocols are followed in port for school whiting and no issues were identified with grading that might influence port based length frequencies.</p> <p>As per action item 2 (agenda item 1 of 2020.12 meeting), AFMA will monitor to see if this is an ongoing issue.</p>	
2020.10 Agenda item 5	21	AFMA and CSIRO to undertake a process of improving and validating historical catch time series to get accurate 'total' catch records for species across all jurisdictions. This will include a process of validating catch time series currently within CSIROs database which have been constructed from multiple sources (logbooks, CDRs ⁴⁰ , Klaer spreadsheet), and via the sourcing of additional, verified data from State jurisdictions.	AFMA and CSIRO	By SESSFRAG Data meeting (Aug 2021)	<p>This work will be progressed as a SESSFRAG action item – an update will be provided at SERAG 1 2021 Agenda Item 2.</p> <p>This action will be closed after this meeting.</p>	

⁴⁰ Catch Disposal Records

	2020.10 Agenda item 5	22	AFMA to facilitate greater cooperation and participation of State fishery representatives in future RAG meetings to improve data sharing and insights into fleet behaviour, gear configurations etc. This may be assisted by discussion at the Fisheries Statistics Working Group (a sub-committee of the Australian Fisheries Managers Forum). This action will occur outside of the 2020 assessment period.	AFMA	By SERAG 2021	Daniel Corrie and Paul Burch attended the Fisheries Statistics Working Group Meeting and resolved: <ul style="list-style-type: none"> - Paul Burch will liaise with the State agencies to facilitate provision of catch data, including potentially confidential data to be masked in reports. - Daniel Corrie to liaise with the States and invite representatives to meetings where appropriate. NSW and TAS representatives invited.
	2020.10 Agenda item 5	23	AFMA and CSIRO to establish an approach for determining a reference period for the John dory tier 4 assessment, with a particular focus on early State catches and the likely stock status for the selected reference period. To be completed for the SESSFRAG 2021 Data meeting and outcomes reported back to SERAG in 2021.	AFMA and CSIRO	By SESSFRAG Data meeting (2021)	This was discussed at SERAG 2.1 (Nov 2020), including a catch-MSY and surplus production model approach undertaken by Dr Haddon and Mr Penney in 2020. Dr. Sporcic was requested to explore differences in John dory standardised CPUE between ISMP zones 10, 20 and 30 as a potential indicator of range shift. SESSFRAG considered this in August 2021 and resolved to undertake the tier 4 using CPUE from zone 10 and 20, noting there was insufficient catch in zone 30. SERAG decided that the default reference period (1986–1995) will be used and presented at SERAG 2 (October 2021). This item can be closed.
	2020.10 Agenda item 5	24	Daniel Corrie (AFMA) and Simon Boag to engage with industry regarding identification issues between oxeve and spikey oreo to improve logbook records	AFMA (Daniel Corrie) and Simon Boag	As soon as practical	AFMA have had initial discussions with operators. AFMA and SETFIA will consider developing a Communications package to distribute to broader industry. AFMA will maintain this action item until there is confidence the issue has been resolved.

2020.10 Agenda item 6	25	AFMA to undertake a risk assessment to explore the risk associated with increasing the smooth oreo (other) TAC to 135 t. This will occur after the 2020 assessment period.	AFMA	By SERAG 2021	Not yet started. This will be included in the November 2021 TAC paper for smooth oreo (other).
2020.10 Agenda item 8	26	AFMA to consider updating the SESSF Harvest Strategy to provide a process for setting TACs when a species is no longer within its initial MYTAC ⁴¹ period and an assessment has not been completed. To be undertaken in time for SERAG 2021.	AFMA	By SERAG 2021	Completed. This was considered at SESSFrag Aug 2021, an updated Harvest Strategy will be uploaded to the AFMA website once approved by the AFMA Commission.
2020.10 Agenda item 8	27	Lead stock assessor (Dr. Paul Burch, CSIRO) to develop a steering committee that will meet as required to help inform/guide the development of the 2021 eastern orange roughy stock assessment. Members: Daniel Corrie, Dan Hogan, Dr. Mike Steer, Dr. Geoff Tuck, Dr. Paul Burch, one independent scientific rep (Dr. Ian Knuckey and/or Mr. Andrew Penney), Dr. Andre Punt. This will be done when the stock assessment commences.	CSIRO (Paul Burch)	By early 2021.	The steering committee met during 2021 and presented their advice and recommendations to SESSFrag in August 2021. The orange roughy stock assessment will be considered at SERAG 1 in September 2021.
2020.10 Agenda item 9	28	AFMA to update the western orange roughy research plan to include guidance on how the data collected under the program can be used to inform future management decisions – include likely timeframes and metrics.	AFMA	By May 2021.	This update will be incorporated into the activities under Action item 4 (2020.11 Agenda Item 6). Item can be closed after meeting.

⁴¹ Multi-Year Total Allowable Catch

	2019.12 Agenda item 2	29	AFMA and Simon Boag to investigate with industry to identify 'soft skinned shark' that is caught inside 300 metres, including species ID and whether it is part of the deepwater shark quota basket. If not part of the quota basket, then AFMA to ensure industry are not incorrectly recording it as part of the deepwater shark quota species in CDRs.	AFMA and Simon Boag	ASAP	<p>Robin Thomson has advised that this species is likely to be the Bareskin dogfish (<i>Centroscyllium kamohorai</i>)</p> <p>This species is already in the deepwater shark basket and there are no records of softskin shark in the AFMA database.</p> <p>SERAG will consider the tier 5 assessment for deepwater sharks at SERAG 2.</p> <p>This item can be closed after this meeting.</p>
	2019.12 Agenda item 2	30	For each of the species in the deepwater shark basket, investigate catch at depth and provide data to Robin Thomson, including the CAAB codes for each species.	AFMA	Before the pre data transfer meeting (March 2020)	Data was provided to Robin Thomson in September 2020. This will be considered as part of the tier 5 assessment for deepwater shark in 2021.
	2019.12 Agenda item 2	31	In addition to decision rules being considered by the discard working group, Paul Burch to consider the decision rules regarding application of Commonwealth discard rates to State fisheries catches with a particular focus on different gear types.	Paul Burch	SESSFRAG Chair's meeting	<p>This action item has been picked up by Daniel Corrie and referred to SESSFRAG for resolution. The action has not yet been resolved.</p> <p>This action will be coordinated by SESSFRAG and can be removed from the SERAG action item list after this meeting.</p>

	2019.12 Agenda item 8	32	AFMA to finalise the Hagfish research plan for consideration by SEMAC at its February 2020 meeting. SERAG have requested additional information before the plan is taken to SEMAC, including a thorough analysis of: (1) the existing scientific literature, (2) the management arrangements in other jurisdictions, and (3) the current operator's logbook data from the preceding four years to better understand spatial extent of catches.	AFMA	By SEMAC Feb 2020	Completed – additional information and draft research plan presented to SERAG at its meeting on 19–21 October 2020. Draft research plan further considered by SERAG at their meeting on 9–10 December 2020. At this meeting SERAG recommended that the draft research plan is to undergo further consultation with industry and relevant stakeholders, prior to further consideration by SERAG.
	2019.12 Agenda item 3	33	At its first meeting in 2021, SERAG to consider how to fix steepness (h) for tiger flathead, in preparation for the 2022 stock assessment.	AFMA	SERAG #1, 2021	This has been added to agenda of SERAG 2. Item can be closed after SERAG 2.
	2019.12 Agenda item 7	34	AFMA to ensure the revised pre-1998 ISMP dataset is captured into the AFMA database and Dr Koopman's code corrections are stored and the old data rebadged appropriately.	AFMA	SERAG #1, 2020	This has not progressed. AFMA will liaise with AFMA's data team to ensure data uploaded and included for 2022 assessments.
	2019.11 (Action items review)	35	AFMA to ensure that the SiDAC data collection includes total and partial lengths of school and gummy shark including school sharks larger than 160cm, and tissue samples of Blue-eye trevalla for CSIRO's close-kin work and for ageing: (a) Start collecting 20 samples from approximately 20% of the shots, and (b) The SSIA co-management contract needs to be finalised and this action item incorporated into the SiDAC Data Plan.	AFMA (GHaT manager)	As soon as possible	Shark samples – completed – considered by SharkRAG in March 2021, included in the SESSF data plan that will inform the 2021 SiDAC contract. Blue-eye sample collection underway – sample collection is pending the outcomes of AFMA project 190842, <i>Scoping study for application of Close Kin Mark Recapture to blue-eye trevalla caught in the SESSF</i> . This project will produce a sampling design for the collection of BET samples to support a close kin assessment. Project will be completed by end of August 2021, the outcomes of which will inform

						sample design and be incorporated into the SIDaC program.
2019.11 Agenda item 3	36	AFMA to investigate logbook records of catches of 'Black Trevally' (also called Black Snotty) from the last 2 years and verify with skippers whether species recorded on CDRs is Blue Warehou. If so, AFMA will correct data records and correct recording practices.	AFMA	By SERAG #2, Dec 2019	AFMA have confirmed the species is blue warehou. The skippers have been informed and will record future catches as blue warehou. AFMA are yet to update the database – and will update SERAG once done. Keep item open until records are corrected.	
2019.11 Agenda item 10.2	37	AFMA to investigate CDR data for redfish catches in the west - how it is reported as either Bight redfish or redfish, and correct errors.	AFMA	By SERAG #2, Dec 2019	Since 2010, 97% of the catches in the west are recorded as eastern redfish. Observer data could be reviewed to determine if there is a mixing of the species in the western part of the CTS. Keep item open until observer data has been reviewed.	
2018.09 Agenda item 8	38	AFMA/Industry to clarify how observers have recorded discards of Silver Warehou on the factory boats (suggesting it was discarded but covered by quota, so should be in CDR records).	Daniel Corrie	ASAP	AFMA have confirmed that all silver warehou are retained and processed as fish meal on the factory boats. A discrepancy remains in the logbooks and CDRs and AFMA have discussed with the licensing team. Item can be closed.	

Attachment C – Action items arising from the meeting

No.	Agenda Item / Meeting Date	Action Item	Agency / Person	Timeframe
1	2 SERAG 1 September 2021	AFMA are to close the action item '2020.10 agenda item 5' regarding John Dory. CSIRO (Dr Miriana Sporcic) are to use the default reference period (1986–1995) in the upcoming tier 4 stock assessment of John Dory.	Miriana Sporcic (CSIRO)	SERAG 2 October 2021
2	4 SERAG 1 September 2021	AFMA to capture historical RAG advice and the basis for setting the 150 t TAC for Cascade smooth oreo in species summary reports.	AFMA	As soon as practicable
3	4 SERAG 1 September 2021	AFMA to confirm that Cascade orange roughy otolith ageing is present in the Fish Ageing Services work plan.	AFMA	As soon as practicable
4	6 SERAG 1 September 2021	AFMA to interrogate data of those vessels that have increased redfish catch in recent years in collaboration with Dr Paul Burch (CSIRO). This could include developing a statistic or a plot that captures vessels returning to locations of high Redfish bycatch.	AFMA	As soon as practicable
5	6 SERAG 1 September 2021	AFMA to investigate recent redfish catch records as the eastern redfish targeting analysis appears to incorporate GABT Bight redfish catches.	AFMA	As soon as practicable
6	7 SERAG 1 September 2021	AFMA to compile a report detailing the history and decision making used to set previous catch triggers and TACs for the non-quota species of ECDWT for SERAG 2022.	AFMA	SERAG 2022
7	8 SERAG 1 September 2021	Dr Paul Burch (CSIRO) to produce a background paper that discusses the implications of over/undercatch provisions on orange roughy (east) and will explore their incorporation into the current stock assessment and their impacts on upcoming RBC advice.	Paul Burch (CSIRO)	SERAG 3 November 2021
8	9 SERAG 1 September 2021	AFMA and CSIRO to produce a background paper summarising the outputs of the 2010 eastern gemfish stock assessment, including how the model considers discards and how this informs current management advice relative to the status of eastern gemfish.	AFMA and CSIRO	As soon as practicable
9	10 SERAG 1 September 2021	CSIRO, AFMA, and Mr Patrick Cordue to discuss and decide on what diagnostics should be provided/produced as outputs for stock assessments going forward, and for pink ling CPUE in particular.	CSIRO, AFMA and Patrick Cordue	As soon as practicable

No.	Agenda Item / Meeting Date	Action Item	Agency / Person	Timeframe
10	10 SERAG 1 September 2021	Mr Daniel Corrie (AFMA) to talk with Mr Patrick Cordue to discuss catch projections based on MCMC outcomes for both high and low natural mortality (M) scenarios. Also, to incorporate monthly length sample summaries.	AFMA	SERAG 3 November 2021
11	11 SERAG 1 September 2021	Ms Fiona Hill (AFMA) to produce a paper outlining a research priority for a pilot study on effort creep in the SESSF to be presented at SERAG 3.	AFMA	SERAG 3 November 2021