Australian Government
Australian Fisheries Management Authority

South East Resource Assessment Group (SERAG) Meeting 1, 2023

Meeting minutes

26-27 September 2023

In Person and Virtual

Contents

SERAG Meeting 2, 26 -27 September 2023

Agenda

Day 1: Tuesday 26 September 2023
Time (AEDT): 8:45–16:00
Location: Radisson on Flagstaff Gardens Melbourne and Microsoft teams
Chair: Dr Paul McShane

Start (Duration)	Item	Purpose	Presenter/s
08:45 (30 min)	**1. Preliminaries**		
	1.1 Welcome and apologies	For action	Chair
	1.2 Declarations of interest	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	AFMA
09:15 (30 min)	**2. Updates**		
	2.1 Data update	For noting	CSIRO
	2.2 FRDC Project updates	For noting	CSIRO/Fishwell /Andrew Penney
09:45 (30 min)	**3. Climate change and ecosystem update**	For Discussion	Alice McDonald (AFMA)
10:15 (15 min)	***Morning Tea – 15-minutes***		
10:30 (2 hr)	**4. Silver Trevally joint assessment base case**	For advice	Paul Burch (CSIRO)/NSW DPI
12:30 (45 min)	***Lunch Break – 45-minutes***		
13:15 (1 hr)	**5. Blue-Eye Trevalla (Slope) – Draft dynamic Tier 4, draft standard Tier 4** Blue-Eye Trevalla Workplan	For advice	Miriana Sporcic (CSIRO)/AFMA
14:15 (15 min)	***Afternoon tea – 15-minutes***		
14:30 (1 hr)	**6. Deepwater Shark (East and West) – Draft dynamic Tier and comparison with the classical Tier 4 method**	For advice	Miriana Sporcic (CSIRO)
15:30 (30 min)	**7. Mirror Dory – Tier 4**	For advice	Miriana Sporcic (CSIRO)
16:00	**End of Day 1**		

Day 2: Wednesday 27 September

Time (AEDT): 9:30–14:30

Location: Radisson on Flagstaff Gardens Melbourne and Microsoft teams

Agenda items 8 and 10 were deferred to SERAG 2. Remaining items were re-organised to accommodate online presenters

Start (Duration)	Item	Purpose	Presenter/s
09:30 (30 min)	**11. Eastern Orange Roughy – TAC for the 2025–26 season**	For advice	Mark Grubert (AFMA)
10:00 (30 min)	**13. East Coast Deep Water Trawl Sector – non-quota species**	For advice	Mark Grubert (AFMA)
10:30 (15 min)	*Morning Tea – 15-minutes*		
10:45 (1 hr)	**9. Cascade Orange Roughy – Ageing update and TAC advice**	For advice	Kyne Krusic-Golub (FAS) Mark Grubert (AFMA)
11:45 (30 min)	**14. Western Orange Roughy Research Program (WORRP)** Industry update, Research Catch Allowance (RCA) and future sampling requirements	For advice	Simon Boag (SETFIA) Mark Grubert (AFMA)
12:15 (45 min)	***Lunch – 45 minutes***		
13:00 (45 min)	**12. Eastern School Whiting stock structure**	For noting	Karina Hall (NSW DPI)
13:45 (15 min)	**15. RCA for the South East Australian Marine Ecosystem Survey (SEA-MES) during the 2024–25 SESSF season**	For advice	Mark Grubert (AFMA)
14:00 (15 min)	**Other business –** Review of action items	For advice	Chair
14:15 (15 min)	***End of Meeting - Afternoon Tea – 15 minutes***		
14:30	**End of Meeting**		

1 Preliminaries

1.1 Welcome and Apologies

1. Dr Paul McShane (Chair) welcomed attendees to the meeting and made an Acknowledgement of Country paying our respects to this country's First Nations People and Traditional Custodians of the land throughout Australia.
2. SERAG (The RAG) noted apologies received from:
    - Dr Lara Ainley (AFMA[1] – Manager Gillnet, Hook and Trap sector)
    - Mr James Woodhams (Scientific Member, ABARES[2]) with Dr Tim Emery (ABARES) acting as proxy.
3. The RAG noted the following attendee's membership **(Table 1)**.

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

Members	Position
Dr Paul McShane	Chair
Mr Ross Winstanley	Recreational Member
Mr Daniel Hogan	Industry Member
Mr Simon Boag	Industry Member
Dr Ian Knuckey	Scientific Member
Mr Will Mure	Industry Member
Dr Sarah Jennings	Economics Member
Dr Geoff Tuck	Scientific Member
Dr Andrew Penney	Scientific Member
Dr Mark Grubert	AFMA Member
Mr Nathan Jackson	Executive Officer
Invited Participants	**Organisation**
Dr Pia Bessell-Browne	CSIRO[3]
Dr Paul Burch	CSIRO
Dr Miriana Sporcic	CSIRO
Dr Robin Thompson	CSIRO
Ms Franzis Althaus	CSIRO
Dr Geoff Liggins	NSW DPI[4]
Dr Ashley Fowler	NSW DPI
Dr Tim Emery	ABARES
Dr Karina Hall	NSW DPI
Dr Kyne Krusic-Golub[5]	FAS[6]
AFMA Employees	**Role**
Ms Sally Weekes	Senior Manager – Demersal and Midwater
Ms Michelle Henriksen	Senior Management Officer – Gillnet, Hook and Trap

[1] Australian Fisheries Management Authority
[2] Australian Bureau of Agricultural and Resource Economics and Sciences
[3] Commonwealth Scientific and Industrial Research Organisation
[4] New South Wales Department of Primary Industries
[5] Not present on day 1
[6] Fish Ageing Services

Ms Alice McDonald	Climate Adaption Senior Program Manager
Mr Daniel Corrie	Senior Manager – Fisheries Management Branch
Ms Rebecca Jol	Senior Management Officer – Trawl Fisheries
Observers	**Organisation**
Dr Krystle Keller	ABARES
Dr Daniel Wright	ABARES
Mr Phil Hough[7]	Peter and Una Fishing Co

4. The RAG members followed the conflict-of-interest declarations as outlined in Fisheries Administration Paper 12. The RAG noted the general declarations of interest table in **Attachment A**. For specific agenda items where an interest had been declared (Table 2), the RAG decided that when management advice was being determined, the relevant member would participate in the discussion but leave the meeting for recommendations.

Table 2. Agenda items for which species interests by members were declared and SERAGs decision on participation in those items .

Agenda Item	Potential Conflicts of interest	Discussion Participation	Recommendation Participation
5. Blue-Eye Trevalla (Slope) – Draft dynamic Tier 4, draft standard Tier 4	Mr Will Mure Mr Phil Hough	Yes	No
6. Deepwater Shark (East and West) – Draft dynamic Tier and comparison with the classical Tier 4 method	Dr Ian Knuckey Ms Franzis Althaus Dr Geoff Tuck Dr Miriana Sporcic Dr Pia Bessell-Browne Dr Robin Thompson	Yes	No
7. Mirror Dory – Tier 4	Mr Dan Hogan Mr Simon Boag	Yes	No
11. Eastern Orange Roughy – TAC for the 2025–¬26 season	Mr Dan Hogan Mr Simon Boag	Yes	No
13. East Coast Deep Water Trawl Sector – non-quota species	Mr Dan Hogan Mr Simon Boag	Yes	No
9. Cascade Orange Roughy – Ageing update and TAC advice	Mr Dan Hogan Mr Simon Boag	Yes	No
14. Western Orange Roughy Research Program (WORRP)	Mr Dan Hogan Mr Simon Boag	Yes	No

1.2 Adoption of Agenda

5. The RAG adopted the agenda as final.

[7] Only present for Agenda Item 5

1.3 Minutes of Previous Meeting

6. The RAG noted that the minutes from the two SERAG meetings held in 2022 are available on the AFMA Website. The RAG also noted delays in finalising these minutes but that AFMA was trying its best to expedite their delivery.

1.4 Actions arising from previous meetings

7. The RAG noted the action items from previous meetings and the updates provided by AFMA in Attachment B. Specifically, the RAG discussed the following action items.

(i) *8 – AFMA/ SIDAC[8] data collection*

The Blue-eye Trevalla working group met in August 2023 to discuss the future sampling approach for this species. Biological sampling for Blue-eye Trevalla is already facilitated under the SIDAC contract and a contract variation (to expand this work to include CKMR[9] sampling) is required. CSIRO and SSIA[10] will continue discussions on the technical details regarding the CKMR sampling. AFMA and SSIA will meet to discuss how to achieve CKMR sampling under an amended SIDAC contract.

(ii) 27 - AFMA observer coverage on Blue Grenadier Factory Vessels

AFMA can confirm that only one fishery observer is deployed on each New Zealand (NZ) factory freezer boat at any given time. AFMA considers that, at this point in time, 100% observer coverage is required on these 'foreign' boats.

AFMA will review the observer requirements for Blue Grenadier factory freezer boats prior to the 2024 winter fishing season to minimise the impact on data collection from the broader fishery.

SESSFRAG[11] raised similar concerns about observer coverage on NZ factory boats at the 2023 data meeting and a suggestion was made that each company targeting Blue Grenadier could potentially supply New Zealand fishery observers to cover duties in the south east domestic fleet while AFMA observers are deployed on New Zealand flagged vessels.

AFMA will explore this idea with two companies that operate the NZ factory freezer boats.

(iii) 31 - Research Plan to support data collection

AFMA has yet to develop a research plan to support data collection in rebuilding closures but some trawl sampling has been undertaken in the trawl closures by the RV Investigator during the first voyage of the Sout-East Australian Marine Ecosystem Survey (SEA-MES). AFMA has also deployed observers on two vessels to check depth profiles along the outer boundaries of three closures that extend over the continental slope to determine if the area of these closures can be reduced whilst still achieving the conservation goals for Jackass Morwong and John Dory.

AFMA will revisit the need for a sampling plan for the Rebuilding Species closures once the boundary depth evaluation is completed.

[8] Shark Industry Data Collection
[9] Close Kin Mark Recapture
[10] Southern Shark Industry Alliance
[11] Southern and Eastern Scalefish and Shark Fishery Resource Assessment Group

2 Updates

2.1 Data Updates

8. Ms Franzis Althaus (CSIRO) introduced the agenda item and updated the RAG with a presentation and associated paper.

9. The RAG received updates from Ms Franzis Althaus (CSIRO), and Dr Paul Burch (CSIRO) as outlined in Agenda Item 2.1: Data updates cover paper.

10. The RAG made the following points:

- In relation to how research catch is treated versus commercial catch data in representing CDR derived catches, selectivity can vary between and the two and this may produce different requirements for applying multiplication factors (related to discard proportions) between the two. The RAG recommended CSIRO/AFMA work together and add a step within the data summary process to ensure research catch is identified and scaled accordingly if required.
- The RAG emphasised the ongoing need to present weighted length frequencies of discarded vs retained catch to the SESSFRAG Data meeting (2023) as it is a consistent way to visually see when there may be an issue with the sampling program. Noting that these figures are not what necessarily get used in assessments but is what was measured via the sampling program.
- Noted the high coefficients of variance (CV) in the Discard Report. Where observer coverage is low, resulting CVs are often high, the RAG noted this is a result of extrapolating a small sample size.
- Regarding the different methods of calculating discard figures and that having two sets of numbers can be confusing. The estimated percentage of catch discarded during 2022 for Tier 1 species calculated using the Bergh method has been included due to a historical request from SERAG and these numbers differ from the model discard estimates used within Tier 1 assessments. The Bergh calculated discard numbers are not used for management purposes however are available as a comparison to those generated by Tier 1 assessments and some on the RAG consider that they remain useful for other purposes.
    - The Blue Grenadier Bergh calculated discard number is derived mainly from the wet boat fleet. Sampling covered 37 shots and shows how outliers can be magnified in low coverage scenario. Industry reiterated the need for bycatch quota totals to allow for the market to operate efficiently and in turn reduce discard totals.
    - Industry members noted a concern that differing methodologies are producing varying discard estimates for the same species. The RAG noted the differences are magnified through the lack of sampling coverage and emphasises the need to improve sampling coverage across the fishery.
    - Noted a recent increase in reported logbook discards for some species and this may be worth exploring in the future. These data could be presented by AFMA as part of the new proposed reporting format presented at SESSRAG Data meeting 2023.

2.2 FRDC Project Updates

11. The RAG noted the progress of the following FRDC[12] projects:

- Dr Paul Burch (CSIRO) provided an update on *Biological parameters for stock assessments in South Eastern Australia – an information and capacity uplift* (2022-032);
    - To progress the three thematic areas, CSIRO as the lead research agency, will work with a number of partners (CSIRO, universities, FRDC, the SEA-MES project team, the SESSF RAG and interested SESSF industry members) to co-design a series of projects that:
        - directly address the priority biological parameters identified by FRDC project 2019-010 (those parameters associated with age, growth, reproduction and stock structure for which provenance could not be determined or where parameters were identified as older than 20 years);
        - progress emerging methodologies that increase efficiencies in regularly assessing parameters (for example, allow for regular evaluation of change in parameters and can be applied across multiple species);
        - provide low-cost alternatives to current biological parameter determination; and - can be effectively streamlined into assessment processes to ensure that any changes occurring in biological parameters are captured on appropriate time scales by assessments.
    - The project is funded and associated with 4 PhD projects; one of which has been advertised recently. The project coordinators received applications, interviewed two candidates and recommended a candidate apply for a scholarship and if successful they would start next year. Advertisements for the other projects will come out soon and a more detailed coverage will be provided next year when the PhD students are selected and are able to present to the RAG.

- Dr Ian Knuckey provided an update on *Trials of oceanographic data collection on commercial fishing vessels in South East Australia* (2022-007) that is fitting data loggers on commercial fishing sector assets (e.g. trawls, nets, longlines, pots) with temperature/pressure sensors to increase the sub-surface data coverage around Australia's shelf and upper slope. Assisting the collection of data at relevant spatial and temporal scales for use by fishers. Provide extensive quality data to oceanographers in near real time for evaluation and ingestion coastal models for improved analyses and forecasts of oceanic conditions.
    - A strategic goal of the project is for it to be automated and efficient so it can be taken up upon conclusion of funding.
    - The RAG noted the high priority on collecting sub surface data that is at the scale at which fishing occurs, especially over longer time frames. The RAG noted in theory the data collected could be associated with a fishing operation. The RAG also considered possible improvements in targeting (and resulting effort creep) over time through improved understanding of oceanographic conditions.

- Dr Ian Knuckey provided an update on *Improving and promoting fish-trawl selectivity in the Commonwealth Trawl Sector and Great Australian Bight Trawl Sector of the SESSF* (2019-027);

    - The RAG noted the project has identified improvements to regulations to help ensure the intent of gear specifications are being achieved.
    - The Great Australian Bight Trawl Survey project tested standard T90[13] mesh vs conventional mesh as well as a larger T90 mesh vs conventional mesh. Standard T90 mesh vs conventional mesh saw virtually no differences between the two. Dr Ian Knuckey noted a

[12] Fisheries Research and Development Corporation
[13] Turned 90^{o}

change in catch composition of the fishery overtime which may affect intended results of gear regulations.
    - In the Commonwealth Trawl Sector, the project tests a variety of T90 meshes vs standard codend mesh. It also tested different sized ground gears; the project determined difference in the tested ground gears made no discernible difference.
    - The RAG noted there has been multiple papers published already. Also, that CSIRO are co-investigators for the project and future work will look into the impacts that the identified changes in selectivity have on Tier 1 and Tier 4 assessments. This will be done by using simulation analysis.

- Dr Andrew Penney provided a verbal update on *Implementation of dynamic reference points and harvest strategies to account for environmentally-driven changes in productivity in Australian fisheries (2019-036)*;
    - The RAG noted the project has multiple objectives; to identify selected candidate fish stocks showing likely environmentally driven productivity change, conduct comparative assessments for these stocks using equilibrium and dynamic reference points, and prepare a candidate harvest strategy that includes dynamic reference points for testing in the FRDC Multi-Species Harvest Strategy project.
    - The project looked for evidence across 8 different stocks, including Northern Prawn Fishery and Tropical Rock Lobster Fishery to compare with southern species such as Jackass Morwong and Redfish.
    - Presentations and stakeholder summaries have been presented and show a range of evidence of strong climate effects for Jackass Morwong and apparently strong climate effects for Eastern Gemfish. All identified climate effects for the tested southern species have been negative. Northern species and stocks are affected with a high variability in both a positive and negative direction.
    - The project investigated historical assessments for the stocks to identify non-fishing events which had a large impact on fish stocks. CSIRO has performed simulation work to show potential effect of an external driver being added into assessments.
    - Noted a final report looking into the effects of tracking Dynamic B_0[14] in harvest control rules will be provided to FRDC in the coming months. This work will connect to an international priority of work to help learn how to manage stocks that are being impacted by climate change.

2.3 Actions and recommendations from agenda item 2

Action Item: AFMA and CSIRO to collaborate and add a step in the Data Summary process to ensure that research catches are identified and treated separately to logbook data (to avoid issues associated with scaling up research catches).

3 Climate Change and Ecosystem Update

12. Ms Alice McDonald (AFMA) introduced the agenda item and noted the Draft Climate and Ecosystem Status Report provided to SERAG.

13. The RAG noted the following background information:

[14] Virgin Biomass

- AFMA has been working to better understand the influence of climate change on the SESSF and to integrate current assessments of climate sensitivity into management. Relevant research and information has been presented to a number of RAG and MAC[15] meetings over the past 12 months and was included in the SESSF species summaries for TAC setting process in early 2023.

- AFMA has included information on the climate sensitivity of SERAG species in the species summaries included in the relevant cover papers. The best available information for each species has been included and summarised in a row titled "Climate sensitivity". Each species has been categorised as high, medium or low climate sensitivity, based on the following approach:

Climate sensitivity	**Criteria**
High	• Already impacted by climate change according to attribution studies (where sufficient time series exist) or counterfactual numerical simulations (e.g., undertaken using MICE or a systems model like EwE or Atlantis), and/or • Where preliminary projections from the CSIRO sensitivity analysis[16] suggest abundance will decline by >15% by 2040 with moderate to high confidence.
Med	• Where preliminary projections have indicated a decline of 5-15% in abundance through to 2040 with medium or high confidence, • Where the projections suggest a negative trend in abundance but confidence in the assessment is low, • Where simulations have found climate and fishing impacts have both contributed to stock state, or • If projections are not available, where climate sensitivity has been rated medium to high.

Low	• Projections indicate that:
	  ○ Climate change does not have an influence on the stock,
	  ○ The species abundance will remain stable through to 2040, and/or
	  ○ The species abundance will increase as a result of climate change.
	• If projections are not available, where climate sensitivity has been rated low.

- AFMA has been undertaking a range of other activities, including workshops with fisheries managers, fishery stakeholders and experts to discuss climate impacts on key fisheries and potential adaptation options. The 'Adaptation of fisheries management to climate change handbook', developed by CSIRO and AFMA, is being used as the framework for these discussions. Engagement has included workshops with SESSFRAG in April 2022, GAB stakeholders in June 2023, the AFMA Demersal team in July, as well as stakeholders and managers in other fisheries. A range of communications products are also being developed and rolled out, including updates to the AFMA website and factsheets explaining climate impacts on South-East Australian fisheries

[15] Management Advisory Committee

[16] Appendix to 'Fulton, E.A. et al (2021) Guidance on Adaptation of Commonwealth Fisheries management to climate change. CSIRO Report for FRDC. Hobart

- The Draft SESSF Climate and Ecosystem Status Report indicates that El Niño conditions are likely to develop in coming months. Some areas east of Bass Strait and Tasmania are currently experiencing above average sea surface temperatures, and temperatures of 1-2°C above the long-term (1981-2018) average are forecast to persist in those waters for at least the next few months. Discussion on the potential implications of these warm conditions and the shift to El Niño conditions is encouraged, noting that the last major El Niño was experienced in 2016.

14. The RAG noted the following key points:
    - Industry members noted the information in the Climate and Ecosystem Status report is matching observations on the water in particular, a trend in upwelling delay later into the year. Observing very strong currents that would usually contain pockets of cooler water, however these are now maintaining consistent temperature.
    - The possibility for categories to be extended to Positive – High, Medium, Low and Negative – High, Medium, Low.
    - The possibility of capturing information on the distributional change of species to aid the total abundance of species information.

4 Silver Trevally joint assessment base case

15. Dr Paul Burch (CSIRO) and Dr Ashley Fowler (NSW DPI) introduced the agenda item and provided the RAG with an update on the Silver Trevally joint assessment.

16. The RAG noted the Silver Trevally Working Group met on 25th of July 2023 and provided advice on stock structure, data and pre-specified (fixed) parameters and model structure.

17. The RAG noted the following points from the presentation:

    - The preliminary base case structure as it currently stands:
        - Catches are taken by seven fleets, including a recreational fleet;
        - length data is included for six fleets and the Kapala surveys;
        - selectivity is estimated for five fleets;
        - CPUE indices are included for NSW Trawl, NSW Trap and Commonwealth Trawl;
        - age-at-length data for 1997–1999 is included for the four NSW commercial fleets;
        - discards are estimated (using a retention function) for the NSW Trawl fleet after the introduction of a minimum legal length in 2007.

    - Changes to the model since the April 2023 SESSFRAG Meeting:
        - All data inputs are now on a calendar year;
        - previously aggregated length and age samples from the 1990s have been separated into the year of capture;
        - catches are now assigned to the fleets that caught them with selectivity estimated for the major fleets;
        - natural mortality has been increased from M=0.15yr^{-1} to M=0.18yr^{-1} to better reflect the existing empirical estimates;
        - previous lower estimates of M (M = 0.05 – 0.1 yr^{-1}) come from a New Zealand study where age-specific M was estimated which does not seem particularly likely.
        - Francis weighting has been applied – increasing the weighting on the CPUE indices.

    - The current model outcomes (noting the work below still required):
        - All CPUE indices have increased in the last 3–5 years.
        - There is still some conflict in the both the CPUE and length data.

- The model changes (particularly Francis weighting) have increased the 2022 stock status to around the limit reference point (LRP).
- The lack of recent age-at-length data in the assessment prevents the estimation of recent recruitments, which would provide more confidence in our estimates of current stock status.
- Small changes to data and model assumptions, produce models either below or above the LRP.

- Assessment work still to do:
  - Complete the Francis weighting & Bias Ramp adjustments;
  - check to see if the model can estimate more recent recruitment estimates (beyond 2017);
  - attempt to incorporate the recent NSW age data to provide more information on recent recruitments – potential bias due to the MLL[17];
  - likelihood Profile on natural mortality to inform the pre-specified value of *M* (currently M=0.18yr^{-1});
  - adjusting the retention function for NSW Trawl (after the 2007 MLL) to better fit the data;
  - exploring the impacts of the higher ageing error;
  - investigate the different length-age relationship apparent in older fish from 1999.

- In 2023, CSIRO are not funded to undertake a full Tier 1 assessment and NSW are time constrained. The current assessment while still a Tier 1 model, lacks the exploration of uncertainty that a full Tier 1 assessment would typically provide.

- Suggested sensitivities testing:
  - Vary natural mortality (*M*) by ±20% (base case *M* informed by a Likelihood Profile – to do);
  - vary steepness (*h*) by ±20% of the base case value (*h*=0.7);
  - low and high recruitment variability (σR), maturity, data weighting (Standard sensitivities);
  - low and high historical catch series (bound the uncertainty in catches);
  - low recruitment scenario and;
  - remove the early (1986-1991) Commonwealth CPUE.

18. The RAG discussed the following key points:

- Dr Ian Knuckey noted that Victorian biological estimates may be available in historical NRE[18] booklets. Dr Geoff Liggins noted communications with Victoria on this historical data has occurred and further data is currently not available.

- In the final assessment report, the RAG would like to see a note on the improvement to the NSW Trawl CPUE fit after the Francis weighting is applied.

- Fits to the length for NSW Trawl distribution are poor after the introduction of the MLL in mid-2007. There also appears to be a change in the right-hand side of the length data after the MLL is introduced. There are very low effective sample sizes for 2008 onwards.

[17] Minimum Legal Length
[18] Victoria Department of Natural Resources and Environment

- The base case scenario should be a low recruitment scenario given that it appears below average recruitment has been occurring in recent years and increasing uncertainty due to climate change and this 'low recruitment scenario' should be defined by the Silver Trevally working group.

4.1 Actions and recommendations for agenda item 4

19. The RAG recommended a second Silver Trevally Working Group meeting is held prior to SERAG 2 (2023) to work through the following issues /additional work identified:
    - Complete the Francis weighting and Bias Ramp;
    - dtermine if the model can estimate more recent recruitment (beyond 2017) and;
    - attempt to incorporate the recent NSW age data to provide more information on recent recruitments which may have potential bias due to MLL.

20. The RAG recommended CSIRO and NSW also conduct the following work:
    - Conduct a likelihood profile on natural mortality to inform the pre-specified value of *M* (currently *M*=0.18yr-1);
    - Adjust the retention function for NSW Trawl (after the 2007 MLL) to better fit the data;
    - Explore the impacts of the higher ageing error and;
    - Investigate the different length-age relationship apparent in older fish from 1999.

21. The RAG recommended the Silver Trevally Working Group define a low recruitment scenario and using this definition CSIRO/NSW model a low recruitment base case scenario and an accompanying set of sensitivities for presentation to SERAG 2 (2023).

5 Blue-Eye Trevalla (Slope) – Draft dynamic Tier 4, draft standard Tier 4

22. Dr Miriana Sporcic (CSIRO) opened the agenda item and provided a presentation on the potential application of the Dynamic Tier 4 assessment method to the Blue-Eye Trevalla slope stock and a comparison with the standard Tier 4 assessment method.

23. The RAG noted the following:

    - SESSFRAG was presented with a summary of the Dynamic Tier 4 assessment method – that was developed as part of the Multi-Species Harvest Strategy project – at the April 2023 Chairs' meeting.

    - Standard Tier 4
        - Changes to the time zone (from Coordinated Universal Time (UTC) to local time) in logbook records since 2021 resulted in changes to the Day/Night term which is employed CPUE standardisation analyses. This resulted in no discernible differences in the combined standardised catch-per-hook series between this years' and last years' standardisations.
        - There is more information coming through in the CDR data transfer from AFMA to CSIRO this year and this has an effect for the data points in 1997-1998 (1997 increased 136 t and 1998 increased 29.31 t). These years are currently included in the reference period used for Blue-eye Trevalla.
        - An overall downward trend for both combined standardised catch-per-hook and catch-per-day CPUE over the 2018-21 period, which was followed by an increase to above average in 2022.

- All analyses have limited numbers of observations and hence are relatively uncertain.

- Dynamic Tier 4
  - The Dynamic Tier 4 method is a surplus production model fitted to CPUE data where the sustainable yield is assumed to occur during a historical period of pre-determined reference years. Depending on data availability, the Dynamic Tier 4 assessment method can estimate some or all the parameters of the production function (the intrinsic rate of population increase parameter (r), total mortality corresponding to B_{MSY}[19]/B_0 (z), and the maximum population size parameter (K)).
  - The model estimates biomass and stock status through time, along with production (or recruitment) deviations. The assessment method also has diagnostics that assess model fits to CPUE data.

24. The RAG noted the key following information:
    - Industry members and invited participants have noted a similar trend in catches as that represented in the standardised CPUE.
    - The biomass status plots provided in the Dynamic Tier 4 presentation have a good fit to the CPUE series and shows no concerning residual trends.
    - Industry members raised concerns that extended fishing for Pink Ling due to lack of quota availability of Blue-eye Trevalla is perhaps causing what looks like a declining CPUE trend as these shots where pink ling are targeted are included in the standardised CPUE for blue-eye trevalla. The RAG noted that a targeting analysis was possible and has been performed in the GAB, however, did not produce results of significance. Completion of the 'targeting' field in logbooks by fishers should also assist in improving the CPUE series.
    - The Dynamic Tier 4 assessment is less susceptible to errors in reference years, and fitting to data rather than averaging CPUE points provides more stability in results.
    - Industry members noted Blue-eye Trevalla has been caught since the 1970s.
    - The RAG noted that in the future there is a possibility to use a longer catch history than is currently used.

5.1 Actions and recommendations for agenda item 5.

Recommendations

25. The RAG accepted the use of the Dynamic Tier 4 assessment method and recommended the use of this method to provide RBC[20] advice at SERAG 2.
26. The RAG recommended CSIRO to include catch records for Blue-eye Trevalla back beyond the traditional reference period (1997) when undertaking the Dynamic Tier 4 assessment.

Action Item: AFMA to examine why the non-trawl component of the Blue-Eye Trevalla (slope) CDR data increased by 136.13 tonnes in 1997 and 29.31 in 1998.

[19] Biomass at Maximum Sustainable Yield

[20] Recommended Biological Catch

Action Item: CSIRO to include catch records for Blue-Eye Trevalla (slope) prior to the traditional reference period (1997) when undertaking the 2024 assessment.

6 Deepwater Shark (East and West) – Draft Dynamic Tier and comparison with the classical Tier 4 method

27. Dr Miriana Sporcic (CSIRO) opened the agenda item and provided the RAG with a presentation.

28. The RAG noted the following information on Deepwater Shark East from Dr Miriana Sporcic (CSIRO):
    - The most recent Standard Tier 4 was last undertaken in 2018.
    - Catches of Eastern Deepwater Sharks declined steadily from 1996 to a low of 8 t in 2007 when the 700 m closure was introduced. Since the borders of this closure were modified in 2009 (and 2016) catches have increased again to reach a mean of 35 t p.a. over the last five years with fewer vessels contributing significantly to this fishery, relative to the 1990's. Nevertheless, fishing appears to be consistent and the standardised CPUE trend has been essentially low and flat since 2010, despite small decreases and increases over the last three years. The removal of catch from the 700 m closure made minimal differences to standardised CPUE compared to CPUE indices which included the closure in analyses.
    - Currently catch rates from the "Other sharks" CAAB code are included in the standardisations – this is important for the early years in the assessment.
    - The Dynamic Tier 4 assessment method was used to create four different plot series based on the following catch series:
        - Series 1 (A) used the catches from 1992 onwards. The depletion plot in this series shows the stock straddling the limit reference point in 2010.
        - Series 2 (B) used logbook data prior to 1992 and has no reconstruction.
        - Series 3 (C) used a linear interpolation in years prior to where there is logbook data.
        - Series 4 (D) used an alternative reconstruction catch history for earlier period derived from the average of CPUE from years of peak effort.
    - In the 2018 Standard Tier 4 assessment the methodology used no discards, CPUE based on open areas only, started from 1992 and prior to this date used logbook records.
    - If discards are used it will be based upon a 72% (predicted) data point in 2016. Dr Miriana Sporcic (CSIRO) investigated logbook discards to use instead, they range between 2-62.6 t over 2015-2022 annually. These correspond to 0.4% - 63%. The logbook recorded discard value is 5% for 2016, this is very different to the predicted data point. Dr Miriana Sporcic (CSIRO) suggested to not use discards while undertaking the assessment.

29. The RAG noted the key following information for Deepwater Shark East assessment:
    - AFMA is working with its observers to improve species identification within the Deepwater Shark basket.
    - Catch series 1 (A) mirrors the RAGs understanding of the Deepwater Shark East stock.
    - Identified a decline in the early years of stock status for Deepwater Shark East– when catches are low.
    - Using open areas only had negligible effect on CPUE and there is currently no fishing in closed areas.
    - The group CAAB code 37990003 is not included in the Deepwater Shark basket from 1998 onwards. This code is starting to become more frequent in logbook entries again.

30. The RAG noted the following information on Deepwater Shark West from Dr Miriana Sporcic (CSIRO):

- Noted the last Standard Tier 4 was conducted in 2018 and the four-year CPUE average was above the target reference point.
- The Dynamic Tier 4 assessment method was used to create different plot series based on the following catch series:
    - Series 1 (A) used the catches from 1992 onwards.
    - Series 2 (B) used a linear interpolation in years prior to where there is logbook data.
    - Series 3 (C) used an alternative reconstruction catch history for earlier period derived from the average of CPUE from years of peak effort.
- The GAB catch was excluded, catch was from open areas only and discards were not used.

31. The RAG noted the key following information for Deepwater Shark West assessment:
    - The Standard Tier 4 indicates the stock is well above the target reference point while the Dynamic Tier 4 suggests the stock reached the limit reference point and is now creeping back up to the target reference point. This may suggest the previous target reference period was too low.
    - Recognised the same issue, where there is a decline in the early years of stock status for Deepwater Shark West when catches are low, CSIRO noted the reference period must be checked before the assessment is used for RBC advice.
    - The Dynamic Tier 4 is arriving at the same stock projection while using fundamentally different catch series.
    - Recommended a clear explanation for the method used to reconstruct the historical catch within the assessment reports for SERAG 2.

6.1 Actions and recommendations for agenda item 6

32. The RAG recommended a Dynamic Tier 4 approach for Deepwater Shark East using a reconstruction of the early catch history.
33. The RAG noted there are no reliable estimates of discards for Deepwater Shark East and recommended not using discards in the assessment.
34. The RAG recommended using open areas only (where sufficient data is available to identify this) as part of the assessment advice for Deepwater Shark East.
35. The RAG recommended CSIRO provide a clear explanation of the method used to reconstruct the historical catch.
36. The RAG recommended using a Dynamic Tier 4 approach using early catch history reconstruction for Deepwater Shark West.
37. The RAG recommended not using discards for the Dynamic Tier 4 approach for Deepwater Shark West.

ACTION ITEM: CSIRO to investigate and explain the cause of the decline in stock status in the early years of the Deepwater Shark (East) Dynamic Tier 4 assessment when catches were low.

7 Mirror Dory – Tier 4

38. Dr Miriana Sporcic (CSIRO) opened the agenda item and presented the Tier 4 assessment for Mirror Dory.

39. The RAG noted the following key information from the presentation:

    - The RBC estimates produced by the 2023 Tier 4 assessments are 269.89 t for the Eastern stock and 76.32 t for the Western stock.
    - The increase in the RBC for Mirror Dory East (up 132.12 t) compared to the previous assessment is attributed to an increase in the Catch Per Unit Effort (CPUE; including discards) in the most recent

year of the time series (which increases the mean of the rolling four-year average on which the RBC is based).

- The 2023 RBC for Mirror Dory East is greater than the reported catch of this stock in 2022 which was 46.8 t, or 113.15 t including discards. The CPUE for Mirror Dory in 2022 was above the $CPUE_{Limit}$ and above the $CPUE_{Target}$ for the first time since 2011.
- The increase in the RBC for Mirror Dory West, up 27.6 t compared to the previous assessment, is attributed to an increase in the mean of the most recent four-year average CPUE, which is used to calculate the RBC. The 2023 RBC for Mirror Dory West is greater than the reported catch of this stock in 2022 that was 41 t.

40. The RAG discussed the following key points:

- The increases in CPUE over the last two years is likely caused by the cyclical nature of Mirror Dory biomass.
- There was some concern regarding the high discard weights (potential fish wastage) for Mirror Dory East but after reviewing the ISMP report the RAG accepted the number.
- SESSFRAG (2023) has recommended moving Mirror Dory to a 2-year assessment cycle.

7.1 Actions and recommendations for agenda item 7

41. The RAG recommended the RBC derived from the Standard Tier 4 assessments of both Mirror Dory East (269.89 t) and Mirror Dory West (76.32 t) and that the discount factor be applied.

9. Cascade Orange Roughy – Ageing update and TAC advice

42. Dr Kyne Krusic-Golub (FAS) opened the agenda item and provided the RAG with an update on the ageing work on Cascade Orange Roughy. Key points from the presentation were:
    - Recent length distributions have reduced (fewer older fish) slightly when compared to earlier years.
    - Otolith weight distribution in 2019 (comparatively small sample size) is quite different when compared to weight distributions in the 2008 and the 2020 samples. Heavy otoliths are not seen in the 2020 samples, but this could be caused by a sampling effect.
    - Comparing mean otolith weight to length between different Orange Roughy regions shows Cascade Plateau and the Southern Zone match very well. The Western and Eastern Zones do not match, suggesting these could be different stocks.
    - Comparing otolith weight to length across years for the Cascade Plateau to determine if there may be different stock visiting the area, did not produce definitive results and suggested more of a fish down effect from over time.
    - Some samples will need to be re-aged as bias in ageing has been identified (presented to the SESSFRAG August Data Meeting).
    - Otolith weight has a reasonably good relationship to age in Orange Roughy and can potentially be used as a proxy for age.
    - There is evidence of a possible fish down effect in the length frequencies, otolith weight frequencies, and the preliminary age frequencies, captured in the loss/truncation of the right-hand side (older/larger fish) of the distributions. Noting this, there are still some old fish in the most recent samples and there are still younger fish (25-30 years) coming through.
    - The distribution from 2018-2021 is quite different again and investigation should be undertaken to determine if the samples were taken from a spawning aggregated stock.

43. The RAG discussed the following key points:

- Otolith weight as a proxy for age could be a significantly cheaper method of obtaining ages and should be investigated as a possibility for use in future assessments noting that there is still some work to do before this could be adopted.
- Noted the proportion of the TAC caught in recent years is only around 2% and last season was 4% and also that the stock is significantly under-caught over the past two decades. This lowers the RAGs concern for recommending the TAC be rolled over for next season.
- Despite the low catch in recent years, Industry members noted the need to maintain the TAC at a level that will incentivise fishing in the region and support ongoing data collection. Specifically, that any further reduction in TAC might make the stock commercially unviable in that the potential reward does not exceed the risk in sending a vessel to target such a fickle fish stock.
- Dr Paul Burch (CSIRO) noted the concern that the recent samples may not be from the spawning component of the stock and if this was the case, they would need to be excluded from the next assessment. CSIRO and FAS agreed to investigate this further.
- Regarding the considerable change in otolith frequencies suggests something fundamental happened around 2007-08 period which the RAG could not explain. Industry members noted that Orange Roughy catches at Cascade Plateau used to be consistent, and this consistency has disappeared.
- Dr Andrew Penney noted Orange Roughy behaviour is very unpredictable – stocks in New Zealand seemingly disappeared and reappeared elsewhere.
- How obtaining age information from otoliths could be achieved in a more cost-effective manner, including not ageing samples less than five years apart and applying a weight/length relationship into the intervening years.
- Dr Paul Burch (CSIRO) noted both otolith age data and otolith weight converted to age can be used in a Stock Synthesis assessment model. There would likely be more uncertainty around otolith weight relationship and the otolith weight relationship can plateau for some species. The Orange Roughy otolith weight base age data would need to be validated before it is integrated into a model.

9. Actions and recommendations from agenda item 9

44. The RAG considered updated age information and noted:

    - A likely fish down effect prior to 2008 with a reduction in older age classes in the samples.
    - Eastern stocks differ from Western stocks in terms of stock structure.

45. The RAG noted the assessment is being updated in 2025 and that there is nothing in the presented updated age data that would suggest maintaining the current TAC is not sustainable and therefore recommended maintaining the TAC.

46. The RAG recommended continuing to prioritise observers on boats fishing on the Cascade Plateau for sample collection of biologicals and maturity given the assessment coming up, noting effort in the fishery is low.

Action Item: CSIRO/FAS/AFMA to discuss an Orange Roughy ageing plan including ageing requirements for each Orange Roughy stock, and the order of priority for assessments.

Action Item: CSIRO and FAS to investigate if Cascade Orange Roughy sampled in 1999, 2004, 2020 and 2021 were from spawning aggregations.

Action Item: CSIRO to explore the potential use of Orange Roughy otolith weight as a proxy for age to reduce analysis costs (noting the need for validation and ground truthing of the otolith weight/age relationship every few years).

11. Eastern Orange Roughy – TAC for the 2025-26 season

47. Dr Mark Grubert (AFMA) opened the agenda item seeking RAG advice on how the RBC might be set for the 2025–26 season given the Acoustic Optical Survey (AOS) that informs the assessment has been delayed until 2024, thereby pushing that assessment back to 2025.

48. The RAG noted:
    - Delaying the assessment until 2025 would mean the TAC for the 2025–26 SESSF season would be the 4th year of a 3-year Multi-Year TAC (MYTAC);
    - The ~1187 tonne (t) TAC (including unders/overs) for the 2022–23 season was 98% caught and that the ~994 t TAC (including unders/overs) for the 2023–24 season is (as of 18 September 2023) 53% caught, it is expected that the TAC will be significantly under-caught in 2023-24
    - The New Zealand factory freezer boat did not target Eastern Zone Orange Roughy during winter 2023 because they expected that an AOS would be running, the AOS survey was cancelled at late notice. The New Zealand orange roughy freezer vessel plans to utilise the 100% undercatch provision for this stock and also to complete the AOS survey largely at their cost in 2024 dependant on the outcome of their deeming application.

11. Actions and recommendations from agenda item 11

49. The RAG noted the uncertainty in terms of the assessment and therefore risk to stock, increases over time the further away from the assessment you get.
50. The RAG acknowledges the low risk (produced by the recent assessment) to the stock biomass with delaying the future assessments by one year and recommended extending the 950 t RBC for the Eastern Zone Orange Roughy into the 2025-2026 SESSF season.
51. The RAG noted that further delays in an assessment would result in the need for a precautionary approach that accounts for the increased risk of relying on older assessments. Noted it was imperative for the AOS to occur next year.

12. Eastern School Whiting stock structure

52. Dr Karina Hall (NSW DPI) opened the agenda item and provided the RAG with a presentation titled “An updated understanding of Eastern School Whiting stock structure that was being provided for information.

53. The RAG noted the following key information from the presentation:
    - The objectives of the project are as follows:
        - To clarify the stock structure of Eastern School Whiting in South-Eastern Australian waters using a range of modern methods;
        - Investigate the spatial and temporal variation in the main biological parameters (length and age structures, growth and reproductive biology) of Eastern School Whiting across the species’ distribution;
        - Investigate the species composition of mixed trawl Whiting catches in northern NSW to improve the quality of state catch data used in stock assessments; and

    - Explore the effects of the findings from the first three objectives on the outputs of an updated Tier 1 stock assessment for Eastern School Whiting.
- To address these objectives, the project examined a range of variables including genetics, morphometrics, otolith microstructure and otolith chemistry.
    - Preliminary conclusions:
        - Most analyses support Tasmania as separate population with some mixing to other populations.
        - Some support for South Australia also being separate, but this is based on a small sample size and from a different season.
        - Some significant differences among core regions of otoliths suggesting some separation in early life history for southern and northern extremities.
        - Considerable mixing of adults indicated by adult regions of the otolith, but some significant differences at the extremities.
        - Some support for different spawning seasons across broad regions.
- The RAG thanked Dr Hall for the presentation and noted the Eastern School Whiting Tier 1 assessment is scheduled for 2024.

13. East Coast Deep Water Trawl (ECDWT) Sector – non-quota species

54. Dr Mark Grubert (AFMA) opened the agenda item seeking RAG advice on the TAC for non-quota species in the ECDWT sector, highlighting the following:

    - There has been no fishing activity in the ECDWT sector since the 2019–20 Southern and Eastern Scalefish and Shark (SESSF) season, and no catch of Orange Roughy by this sector since 2003–04.
    - AFMA proposes a bycatch TAC of 50 t for ECDWT caught Orange Roughy during the 2024–25 SESSF season and that this bycatch TAC is considered through the annual rebuilding species reviews in future.
55. It is proposed to include Boarfish in the 'Trigger Species' category, recently adopted by SESSFRAG, with a catch trigger of 10 tonnes (separate to the 200 t catch limit). This is on the basis that the risk to Boarfish in the ECDWT sector are equal, or lower, than that in the CTS and that current fishing mortality (*F*) is likely to be less than fishing mortality at maximum sustainable yield (FMSY) given the history of low exploitation of Boarfish by this sector. The RAG noted the following key points:
    - That Boarfish meets the criteria of 'Trigger Species':
        - All five Boarfish species considered in the ERA for otter trawling in the CTS received low susceptibility scores and low final risk scores. AFMA considers that the risks to Boarfish in the ECDWT sector are equal, or lower, than those in the CTS and that there is a strong probability that F is less than FMSY given the history of low exploitation of Boarfish by this sector; and
        - TAC ("Catch Limit" in the case of Boarfish) is less than 75% caught; and
        - The species is flagged as a non-indicator species under MSHS[21] approach.
    - Noted the 10 t trigger for Boarfish is the point in which AFMA will start reviewing information and make decisions on data collection and assessments. If the trigger is reached it indicates to management that the dynamics have changed within the fishery.

[21] Multi Species Harvest Strategy

13. Actions and recommendations from agenda item 13

56. The RAG recommended ECDWT caught Orange Roughy:
    (i) Be managed through bycatch TAC of 50 t for the 2024–25 SESSF season;
    (ii) With this bycatch TAC to be considered through the annual rebuilding species reviews in future; and
57. The RAG recommended Boarfish within the area of the ECDWT sector
    (i) Be classified as 'Trigger species', with an annual catch trigger set at 10 t.
    (ii) The catch limit be set at 200 t for the 2024-25 SESSF season.

14. Western Orange Roughy Research Program (WORRP)

58. Dr Mark Grubert (AFMA) and Mr Simon Boag opened the agenda item and provided the RAG with an update on the WORRP.

59. The RAG noted the following key information from the paper and presentation:
    - AFMA granted scientific permits to six boats (Empress Pearl, Moira Elizabeth, Saxon Onwards, Vivienne Jane, Western Alliance and Zeehaan) under the WORRP to conduct research fishing for Orange Roughy from 1 May to 31 October 2023.
    - There has been a total of 113 shots recorded in logbooks throughout the three WORRP zones (Southern, Northern and Central). This has resulted in just over 40 t of retained logbook reported Orange Roughy.
    - It has been a quiet year for effort as there has been strong currents throughout the western region. The initial excitement and interest in the program have comparatively eased off. There is low intertest in fishing for Western Orange Roughy during June and July as the Eastern winter fishery is at its peak, and market conditions are not worth the effort.
    - Industry noted the weather has been very tough this year, this reduces the window of opportunity in catching Orange Roughy. Industry is still figuring out how to best fish the grounds, noting most of the Northern Zone is flat ground (this is reflected in the mixed catch data), and historical reports have spawning aggregations within the Murray Dogfish Closure.
    - The program to date has collected samples from ~65% of shots performed, and it is again reaching the 2023 collection targets despite the unfavourable conditions.
    - A successful 2023 will see all four previous surveys very near to collection targets.
    - Industry is proposing the program has access to fishing within the Murray Dogfish Closure at Orange Roughy depths with appropriate monitoring, on the basis that the majority of historical catches for the region were caught within the Murray Dogfish Closure, the closure line extends further than the 700m deep water line and Upper-slope Dogfish are normally caught at shallower depths.

60. The RAG discussed the following points:
    - That in relation to gulper sharks, they have a diel cycle of moving into shallower and deeper water, and at night-time Southern Dogfish go down to depths of ~900m.
    - Recent trial work off eastern Bass Strait by a drop line operator to target Blue-eye Trevalla within a Gulper Shark Closure and avoid gulper sharks, with observers present. Fishers have shown the ability to be extremely targeted and have not caught a Gulper Shark in the initiative. This highlights there is a way to work within parameters to ensure closures are still achieving the aim they have been implemented for while greater flexibility can potentially be afforded to industry.

- Support for the idea for AFMA and SETFIA to examine the possibility of extending the program to allow targeted fishing of Orange Roughy within the Murray Dogfish Closure. This must be accompanied by a stop trigger for gulper sharks and monitoring.
- Recognised the success of the program to collect a large number of Orange Roughy samples over a large spatial and temporal range.
- Dr Paul Burch (CSIRO) would like to start processing these samples in the near future, starting with weight measurements to give a rough estimation of the stock status. Dr Kyne Krusic-Golub (FAS) noted sub sampling would be required (n = ~1000) but otolith weight frequencies and length frequencies should be conducted first.

14. Actions and recommendations from agenda item 14

61. The RAG recommended the WORRP continues next season with the current 200 t RCA and 100 t trigger.

62. The RAG recommended that CSIRO/FAS look into the otolith weight frequencies, length frequencies and maturity data of the samples collected from the WORRP.

Action Item: AFMA and SETFIA to investigate allowing target fishing of Orange Roughy within the Murray Dogfish Closure as part of the WORRP. Any research fishing would need to include southern dogfish catch triggers and appropriate observer coverage to ensure that the protection of this species is not compromised.

Action Item: CSIRO and FAS to examine otolith weight frequencies, fish length frequencies and maturity data from Orange Roughy sampled through the WORRP. CSIRO to determine if there is now sufficient data to undertake an assessment of Western Orange Roughy.

15. RCA for the South East Australian Marine Ecosystem Survey (SEA-MES) during the 2024–25 SESSF season

63. Dr Mark Grubert (AFMA) opened the agenda item and provided the RAG with an update on the SEA-MES project so far, and outlined that a second and third voyage are scheduled for the 2024-25 fishing season for which a research catch allowance is being sought.

- Dr Rich Little (CSIRO, Principal Investigator) has requested that the same RCA be granted for the second and third SEA-MES voyages (both of which fall in the 2024–25 SESSF season) as was granted for the first.
- RCA is deducted from the Recommended Biological Catch as part of the annual Total Allowable Catch (TAC) setting process or granted in addition to bycatch TACs.

15.1 Actions and recommendations from agenda item 15

64. The RAG recommended an RCA of 10 t of mixed quota species (relevant to the SESSF and Small Pelagic Fishery; SPF) for each SEA-MES voyage planned for 2024-2025 fishing season.

Close of Meeting.

65. The RAG noted member availability and confirmed 2nd and 3rd November for SERAG 2 2023.
66. The Chair thanked the RAG for their contribution and closed the meeting.

Attachment A – Register of interests

Members, invited participants and observer's declarations of interest.

Member	Declaration
Dr Paul McShane (Chairperson)	Chair of SERAG and a member of SEMAC and SESSFRAG. No pecuniary interest in the SESSF. Principal of Global Marine Resource Management Pty Ltd. Adjunct Professor (Fisheries and Aquaculture) College of Science and Engineering, James Cook University.
Dr Mark Grubert	Employed by AFMA, Manager of the South East Trawl (SET) and Great Australian Bight (GAB) Trawl sectors. No pecuniary or other interest.
Dr Sarah Jennings	Economics member on SERAG, SESSFRAG and SEMAC. Economics coordinator, FRDC Human Dimensions Research Subprogram. Member of AFMA Economics Working Group. Adjunct Senior Researcher, TSBE, University of Tasmania. Casual employee, IMAS, University of Tasmania. Independent economics consultant. No pecuniary or other interest.
Dr Geoff Tuck	Employed by CSIRO and involved in stock assessments. Interest in obtaining funding for future research. Principal investigator on SESSF stock assessment project. Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification
Mr Andrew Penney	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 Southeast RAG, the Tropical Rock Lobster RAG and the Small Pelagic Fishery RAG. Member of the AFMA ERA Technical Working Group. Deputy Scientific Member on the New South Wales Fisheries Total Allowable Fishing Committee Sep 2020 to Sep 2023. No shareholding and hold no positions relating to any other companies, including any fishing companies or industry associations.
Dr Ian Knuckey	**Positions:** 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 **Current projects:** FRDC 2018-021 – Development and evaluation of multi-species harvest strategies in the SESSF NSW 2021-1238 – Developing a harvest strategy framework for Aboriginal cultural fishing in NSW DAWE Project – Multi-sector fisheries capacity building AFMA 2020-0807 – Bass Strait Scallop Fishery Survey – 2020-22 FRDC 2019-027 – Improving and promoting fish-trawl selectivity in the SESSF and GABTS FRDC 2018-021 – Development and evaluation of SESSF multi-species harvest strategies Traffic Project – Shark Product Traceability Sea Cucumber Ass. – Design and implementation of various sea cucumber dive surveys. Australia Bay – Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery Expert Witness – Gladstone Harbour development impacts
Mr James Woodhams	• Employed by ABARES - Section Manager. • No pecuniary interest in the fishery. • ABARES has a minor role (and a small amount of project funds) in '2019-036: Implementation of dynamic reference points and harvest strategies to account for environmentally driven changes in productivity in Australian fisheries. • Any future interests in projects or research will be declared as required. • Non-financial role on the steering committee for the Multi species harvest strategy project led by CSIRO
Mr Ross Winstanley	No pecuniary interest in SESSF however declares he has a brother-in-law that holds a Victorian Inshore Trawl Licence.
Mr Daniel Hogan	Owner operator of trawler Zeehaan out of Portland, Vic. Commonwealth Trawl Sector boat and quota SFR holder.
Mr Will Mure	Sole Director of Mures Fishing P/L Commonwealth fish receiver permit Tasmania fish processing licence Scalefish hook boat SFR, SEQ Quota Holding Permits, Auto longline fishing permit High Seas permit Blue eye trevalla SFRs, Ling SFRs, Ribaldo ITP Mixed species Individual Transferable Quotas (ITQs) and SFRs Member of various fishing related associations including Seafood Industry Australia (SIA), South East Trawl Fishing Industry Association (SETFIA), Southern Shark Industry Alliance (SSIA), Tasmanian Seafood Industry Council (TSIC)

Mr Simon Boag	EO SETFIA (trawl) EO SSIA (sharks) EO SPFIA (SPF) • Non-beneficiary Director of two fishing companies in the SESSF one of which is a significant quota owner. • Industry member on both SERAG and SEMAC. • SSIA is engaged by AFMA to collect shark industry biological data • SETFIA is the PI on the Orange Roughy east AOS and ORS Cascade survey • SETFIA is engaged by participants within the W ORS research fishery to collect biological samples • SETFIA is engaged by AFMA under co-management to undertake a variety of tasks including snapper management, ling management and consultation
Mr Nathan Jackson	Employed by AFMA, Senior Management Officers. Executive Officer (EO) of SERAG. No pecuniary or other interest.

Invited Participants	**Declaration**
Dr Robin Thomson	CSIRO Assessment Scientist. Acquiring funding for research purposes. Principal Investigator (PI) for close kin project for school shark. PI of the AFMA-funded project 2022/0806: "CKMR assessment design for selected key and rebuilding species in the SESSF and development of a CKMR tool for bycatch stocks".
Dr Miriana Sporcic	CSIRO Assessment Scientist. Acquiring funding for research purposes. Project leader CSIRO Ecological Risk Assessments
Dr Paul Burch	CSIRO Assessment Scientist. Acquiring funding for research purposes. CSIRO representative on the Fisheries Statistics and Information Working Group.
Dr Pia Bessell-Browne	CSIRO Assessment Scientist. Acquiring funding for research purposes. PI on FRDC project: Developing a harvest control rule to use in situations where depletion can no longer be calculated relative to unfished levels.
Ms Franzis Althaus	Employed by CSIRO, Research scientist. Acquiring funding for research purposes
Dr Tim Emery	Employed by ABARES. No pecuniary interest in the fishery. Any future interests in projects or research will be declared as required
Dr Geoff Liggins	NSW DPI, Fisheries scientist. Involvement in NSW resource assessments. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.
Dr Ashley Fowler	NSW DPI, Fisheries scientist involved in NSW resource assessments. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.
Dr Karina Hall	NSW DPI Senior Research Scientist Project lead on FRDC 2019-030. An updated understanding of Eastern School Whiting stock structure and improved stock assessment for cross-jurisdictional management
Dr Kyne Krusic-Golub	Director – Fish Ageing Services Pty Ltd No pecuniary or financial interest in the fishery other than securing funds for potential projects related to age and growth studies. Current Related Projects

	AFMA R2022/0812 – Fish ageing for SESSF quota species 2024-26 Project collaborator on FRDC 2019-030. An updated understanding of Eastern School Whiting stock structure and improved stock assessment for cross-jurisdictional management

Observers	Declaration
Dr Krystle Keller	Employed by ABARES. No pecuniary or other interest. Any future interests in projects or research will be declared as required.
Dr Daniel Wright	Employed by ABARES. No pecuniary or other interest. Any future interests in projects or research will be declared as required.
Mr Phil Hough	Vessel Manager/Skipper, Peter and Una fishing Co. Pecuniary interests are limited to the extent of being an employee of a fishing company.

AFMA Attendees	Declaration
Ms Sally Weekes	Employed by AFMA, Senior Manager Demersal and Midwater. No pecuniary or other interest.
Mr Daniel Corrie	Employed by AFMA, Senior Manager Fisheries Management Branch. No pecuniary or other interest.
Ms Alice McDonald	Employed by AFMA, Climate Adaptation Senior Program Manager. No pecuniary or other interest.
Ms Michelle Henriksen	Employed by AFMA, Senior Management Officer, No pecuniary or other interest.
Ms Rebecca Jol	Employed by AFMA, Senior Management Officer, No pecuniary or other interest.

Attachment B – Progress of Action Items from previous SERAG meetings

Complete/Redundant	Underway	Yet to start	Advice required

	Meeting and (Agenda Item)	No.	Description	Responsible entity	Timeframe	Status
	Nov. 2019 (1.5) Action items	8	AFMA to ensure that the SIDAC data collection includes total and partial lengths of school and gummy shark including school sharks larger than 160 cm, 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	Underway. A Blue-Eye Trevalla working group met in August 2023 to discuss the future sampling approach for this species. Biological sampling for blue-eye trevalla is already facilitated under the SIDAC contract and a contract variation (to expand this work to include CKMR sampling) is required. CSIRO and SSIA will continue discussions on the technical details regarding the CKMR sampling. AFMA and SSIA will meet to discuss how to achieve CKMR sampling under an amended SIDAC contract.
	Nov. 2019 (3) Data updates	9	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	SERAG 2, Dec 2019	Completed Historic records have been changed within the AFMA database. A small number of recent GHAT records and CTS records are scheduled to be changed. The AFMA licensing team will talk to those fishers that occasionally record Black Trevally and instruct them to report Blue Warehou. The Data Transformation team will (in consultation with end users) restrict the E-log reference tables to temperate fishes for temperate fisheries/sectors.
	Oct. 2022 (2) Data updates	19	Dr Miriana Sporcic (CSIRO) to present two CPUE series to SESSFRAG data meeting in 2023, one including and one excluding catches from the Cascade Plateau so that	Dr Miriana Sporcic (CSIRO)	2023 SESSFRAG data meeting	Completed Analyses presented at the SESSFRAG Data meeting 2023.

			SESSFRAG can advise which should be used for the 2023 Tier 4 for the blue-eye trevalla slope stock. Furthermore, CSIRO should create a third zone, 'Cascade Plateau', when presenting blue-eye trevalla catches in future data reports.			
	Oct. 2022 (2) Data updates	20	SERAG to write a letter the AFMA Commission, outlining data issues in the SESSF and methods to address some of these issues.	AFMA and SERAG	As soon as possible	Completed Data issues were included as part of a broader suite of recommendations made by SESSFRAG to the AFMA Commission in a letter sent dated June 2023.
	Oct. 2022 (9) Blue-eye trevalla Tier 4 assessment (slope)	25	AFMA to examine the possibility of adding 'bait type' as a field in e-logs so that it can be included as a factor in the blue-eye trevalla CPUE series.	AFMA	SERAG 2023	Completed 'Bait type' is already included as a field in the longline Elogs. Addition of a 'Depredation' field has been identified in work program and should be available for Elog providers by the end of September, with user updates shortly thereafter.
	Nov. 2022 (2) Data Updates	27	AFMA to review observer requirements on Blue Grenadier factory vessels to ensure appropriate data are collected.	AFMA	As soon as possible	Underway AFMA can confirm that only one fishery observer is deployed on each New Zealand (NZ) factory freezer boat at any given time. AFMA considers that, at this point in time, 100% observer coverage is required on these 'foreign' boats. AFMA will review the observer requirements for blue grenadier factory freezer boats prior to the 2024 winter fishing season to minimise the impact on data collection from the broader fishery. SESSFRAG raised similar concerns about observer coverage on NZ factory boats at the 2023 data meeting and a suggestion was made that each company targeting blue grenadier could potentially supply New Zealand fishery observers to cover duties in the south east

						domestic fleet while AFMA observers are deployed on New Zealand flagged vessels. AFMA will pursue this idea with two companies that operate the NZ factory freezer boats.
	Nov. 2022 (8) Rebuilding Species TAC	28	AFMA to provide SERAG members with the decision making and rationale that informed the implementation of the trawl closures.	AFMA	As soon as possible	<u>Completed</u> Papers and presentations provided to the AFMA Commission, SEMAC and Industry meetings outlining the rationale for the closures and their design were sent to SERAG members on 10 July 2023.
	Nov. 2022 (12) SESSF Research Priorities	29	Dr Paul Burch to break down tasks and allocated effort involved in the data processing component of the research proposal *Stock Assessments for target species in the SESSF 2023–25*. To be provided to SESSFRAG.	CSIRO	SESSFRAG	<u>Completed</u> The finalised application for this project contained a breakdown of the data processing tasks and associated costs. A copy of the application is available on request.
	Nov. 2022 (12) SESSF Research Priorities	30	During the first draft of the research plan for the project "Identify environmental indicators of ecosystem health to inform species management" AFMA should engage with the ecosystem team at CSIRO to establish if this work has been performed already.	AFMA	As soon as possible	<u>Completed</u> AFMA has consulted with the ecosystem team at CSIRO and can confirm that the work has not been performed already. This project has since been subsumed into the project "*Evaluating contributing factors to catch per unit effort (CPUE) standardisation in the SESSF*".
	Nov. 2022 (12) SESSF Research Priorities	31	AFMA to develop a research plan to support data collection in rebuilding species closures.	AFMA	As soon as possible	<u>Underway</u> AFMA has yet to develop a research plan to support data collection in rebuilding closures but some trawl sampling has been undertaken in the trawl closures by the *RV Investigator* during the first voyage of the Sout-East Australian Marine Ecosystem Survey (SEA-MES). AFMA has also deployed observers on two vessels to check depth profiles along the outer boundaries of three closures that extend over the continental slope to determine if the area of these closures can be reduced whilst still

						achieving the conservation goals for Jackass Morwong and John Dory. AFMA will revisit the need for a sampling plan for rebuilding closures once the boundary depth evaluation is completed.

Attachment C – Actions Arising from SERAG 1, September 2023

Agenda Item	Responsible entity	Description
2: Data Updates	AFMA/CSIRO	AFMA and CSIRO to collaborate and add a step in the Data Summary process to ensure that research catches are identified and treated separately to logbook data (to avoid issues associated with scaling up research catches).
5: Blue-Eye Trevalla (slope) assessment	AFMA	AFMA to examine why the non-trawl component of the Blue-Eye Trevalla (slope) CDR data increased by 136.13 tonnes in 1997 and 29.31 in 1998.
5: Blue-Eye Trevalla (slope) assessment	CSIRO	CSIRO to include catch records for Blue-Eye Trevalla (slope) prior to the traditional reference period (1997) when undertaking the 2024 assessment.
6: Deepwater shark assessments	CSIRO	CSIRO to investigate and explain the cause of the decline in stock status in the early years of the Deepwater Shark (East) Dynamic Tier 4 assessment when catches were low.
9: Cascade Orange Roughy	CSIRO/FAS	CSIRO and FAS to investigate if Cascade Orange Roughy sampled in 1999, 2004, 2020 and 2021 were from spawning aggregations.
9: Cascade Orange Roughy	CSIRO/FAS/AFMA	CSIRO/FAS/AFMA to discuss an Orange Roughy ageing plan including ageing requirements for each Orange Roughy stock, and the order of priority for assessments.
9: Cascade Orange Roughy	CSIRO	CSIRO to explore the potential use of Orange Roughy otolith weight as a proxy for age to reduce analysis costs (noting the need for validation and ground truthing of the otolith weight/age relationship every few years)
14: WORRP	CSIRO/FAS	CSIRO and FAS to examine otolith weight frequencies, fish length frequencies and maturity data from Orange Roughy sampled through the WORRP. CSIRO to determine if there is now sufficient data to undertake an assessment of Western Orange Roughy
14:WORRP	AFMA/SETFIA	AFMA and SETFIA to investigate allowing target fishing of Orange Roughy within the Murray Dogfish Closure as part of the WORRP. Any research fishing would need to include southern dogfish catch triggers and appropriate observer coverage to ensure that the protection of this species is not compromised.