



Australian Government

Australian Fisheries Management Authority

South East Resource Assessment Group (SERAG) Meeting 2, 2023

Meeting minutes

2-3 November 2023

In Person and Virtual

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SERAG Meeting 2, 2-3 November 2023

Agenda

Day 1: Thursday 2nd November 2023

Time (AEDT): 8:45 am

Location: Radisson on Flagstaff Gardens Melbourne and Microsoft teams

Chair: Dr Paul McShane

Start (Duration)	Item	Purpose	Presenter/s
08:45 (45 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
9:30 (1 hr)	2. Deepwater Shark (East and West) Assessments – RBC advice Dynamic Tier 4 – East Standard Tier 4 – West	For advice	Miriana Sporcic CSIRO
10:30 (15 min)	Morning Tea		
10:45 (2 hr)	3. Silver Trevally joint assessment – Recommended Biological Catch (RBC) advice (Part 1) Outcomes of the Silver Trevally Steering Committee meeting and subsequent modelling	For advice	Paul Burch CSIRO/NSW DPI
12:45 (45 min)	Lunch		
13:30 (30 min)	4. Research proposal for validating catch and age models and data sources for data-limited Orange Roughy stocks	For advice	Paul Burch CSIRO
14:00 (1 hr)	5. Rebuilding Species		
	5.1) Annual reviews 5.2) TAC advice	For advice	AFMA
15:00 (15 min)	Afternoon Tea		
15:15 (1 hr)	5. Rebuilding Species Continued	For advice	AFMA
16:15	End of Day 1		

Day 2: Friday 3rd November 2023

Time (AEDT): 8:45 am

Location: Radisson on Flagstaff Gardens Melbourne and Microsoft teams

Start (Duration)	Item	Purpose	Presenter/s
08:45 (1 hr)	6. Blue-Eye Trevalla (Slope) Dynamic Tier 4 – RBC advice	For advice	Miriana Sporcic CSIRO
09:45 (30 min)	7. Hagfish – Non Quota TAC advice	For advice	AFMA
10:15 (15 min)	Morning Tea		
10:30 (1 hr)	8. Advice on future assessments Options for an assessment ‘update’ Silver Warehou assessment in 2024 Pink Ling assessment in 2024	For advice	CSIRO/AFMA
11:30 (30 min)	9. FRDC project update Biological parameters for stock assessments in South Eastern Australia – an information and capacity uplift	For noting	Karen Evans CSIRO
12:00 (45 min)	Lunch		
12:45 (15 min)	10. Silver Trevally joint assessment – RBC advice (Part 2) Review of fixed catch projections Agenda Item not needed after sufficient advice provided in Agenda Item 3.	For advice	Paul Burch CSIRO/NSW DPI
13:00 (90 min)	11. SESSF Research Proposals for 2024–25 and Priorities for 2025–26	For advice	AFMA
14:30 (15 min)	Other Business		
14:45	Meeting close		

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 People and Traditional Custodians of the land throughout Australia.
2. The RAG noted apologies received from:
 - Mr James Woodhams (Scientific Member, ABARES) with Dr Tim Emery (ABARES) acting as proxy.
 - Mr Daniel Hogan (Industry Member);
 - Dr Lara Ainley (AFMA – Manager Gillnet, Hook and Trap) apology on Day 1.
 - Mr Daniel Corrie (AFMA – Senior Manager) apology on Day 2.
 - Ms Franzis Althaus (Invited Participant CSIRO).
3. The RAG noted the following attendee's membership:

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

Members	Position
Dr Paul McShane	Chair
Mr Ross Winstanley	Recreational 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 ¹
Dr Paul Burch	CSIRO
Dr Miriana Sporcic	CSIRO
Dr Geoff Liggins	NSW DPI ²
Dr Ashley Fowler	NSW DPI
Dr Tim Emery	ABARES
Mr Ian Stockton	NSW DPI
Dr Karen Evans ³	CSIRO
Mr Andy Warmbrunn	TAS NRE ⁴
AFMA Employees	Role
Ms Sally Weekes	Senior Manager – Demersal and Midwater
Dr Lara Ainley	Manager – Gillnet, Hook and Trap
Ms Michelle Henriksen	Senior Management Officer – Gillnet, Hook and Trap

¹ Commonwealth Scientific and Industrial Research Organisation

² New South Wales Department of Primary Industries

³ Only present for Agenda Item 9

⁴ Department of Natural Resources and Environment Tasmania

Mr Daniel Corrie	Senior Manager – Fisheries Management Branch
Ms Rebecca Jol	Senior Management Officer – Trawl Fisheries
Ms Jennifer Power-Geary	Senior Management Support Officer – Trawl Fisheries
Ms Rachel Downes	Senior Management Support Officer – Trawl Fisheries
Observers	Organisation
Dr Krystle Keller	ABARES
Dr Daniel Wright	ABARES
Mr Phil Hough ⁵	Peter and Una Fishing Co
Dr Tim Ryan ⁶	CSIRO

1.2 Declaration of Interests

The RAG followed the procedure outlined in FAP12 for managing potential conflicts of interest, with the declarations in relation to specific agenda items, and the RAGs decision regarding the relevant members participation, outlined in Table 2.

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

Agenda Item	Potential Conflicts of interest	Discussion Participation	Recommendation Participation
2	Mr Will Mure Mr Simon Boag	Present	Absent
3	Mr Simon Boag	Present	Absent
5	Mr Will Mure Mr Simon Boag	Present	Absent
6	Mr Will Mure Mr Simon Boag Mr Phil Hough	Present	Absent
11	Mr Will Mure Mr Simon Boag Dr Ian Knuckey Dr Geoff Tuck Dr Pia Bessell-Browne Dr Miriana Sporcic Dr Paul Burch Dr Tim Ryan	Present	Absent

1.3 Adoption of Agenda

- The RAG adopted the agenda as final.

1.4 Minutes of Previous meeting

- The RAG noted that the draft minutes of the [September 2023 SERAG meeting](#) have been compiled and are undergoing internal review. The minutes are expected to be distributed to members by the end of November 2023.

⁵ Only present for Agenda Item 5

⁶ Only present regarding one research proposal discussion in Agenda Item 11

1.5 Actions arising from previous Meeting

6. The RAG noted the action items from previous meetings and the updates provided by AFMA at **Attachment B**. Specifically, the RAG discussed the following action items:

- *AFMA to examine why the non-trawl component of the Blue-Eye Trevalla (slope) CDR⁷ data increased by 136.13 tonnes in 1997 and 29.31 in 1998.*

The AFMA data team have confirmed that (for reasons unknown) the 1997 and 1998 non-trawl Blue-Eye Trevalla (slope) CDR data was not included in previous data dumps. The data held by CSIRO now reflects that in the AFMA data warehouse.

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

The early catch time series Blue-Eye Trevalla (slope) is available and will be presented to SESSFSRAG⁸ in 2024 for consideration and use in the 2024 assessment.

- *CSIRO/FAS⁹/AFMA to discuss an Orange Roughy ageing plan including ageing requirements for each Orange Roughy stock, and the order of priority for assessments.*

AFMA suggests that an Orange Roughy ageing workshop be convened in 2024 to discuss ageing requirements and planning for Cascade, Eastern, Western and Great Australian Bight Orange Roughy stocks. The workshop would include representatives from both SETFIA¹⁰ and GABIA¹¹ and discuss the other Orange Roughy action items from the [September 2023 SERAG meeting](#).

- *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.*

The decline in stock status of Deepwater Shark (East) occurs because the reference years are used to set the target catch, and therefore, the MSY¹² level (B_{40}) during this period. The model then estimates below average recruitment deviations to reduce biomass, and therefore stock status, to reach the MSY level during the reference years.

2 Deepwater Shark (East and West) Assessments – RBC advice

7. Dr Miriana Sporic (CSIRO) opened the agenda item and presented the results of the Deepwater Shark assessments.
8. The RAG noted that while a Dynamic Tier 4 had been recommended for both stocks, for the western stock it was not possible due to the assumption of an unfished population (B_0) at the start of the time series, which had not yet been MSE tested in the Dynamic Tier 4 approach. For this reason, the conventional Tier 4 was undertaken for the western stock.
9. The RAG noted and discussed the following information regarding the Standard Tier 4 Deepwater Shark (West):
 - The total catch for Deepwater Shark (West) in the 2022 calendar year was ~70 t.

⁷ Catch Disposal Records

⁸ Southern and Eastern Scafish and Shark Fishery Resource Assessment Group

⁹ Fish Ageing Services

¹⁰ South East Trawl Fishing Association

¹¹ Great Australian Bight Fishing Industry Association

¹² Maximum Sustainable Yield

- Following advice from SERAG 1 (2023), the CAAB¹³ code 37990003 “Other Sharks” was included in this assessment.
- A catch history reconstruction has been created for Deepwater Shark (West) before the reference period (1995-2004), however this series needs to go through approval before use within the assessment process, this will occur through the catch history project and be presented at SESSFRAG Chairs Meeting 2024.
- The 2023 estimate of the RBC for Deepwater Shark (West) is 326.7 t, an increase of 92.7 t compared to the 2018 estimate (235 t; Sporcic 2018¹⁴). This change is primarily due to an increase in the most recent CPUE¹⁵ (2022) and hence the mean of the most recent four-year average which is used to calculate the RBC. The CPUE for Deepwater Shark (West) in 2023 (0.93) is above the CPUE target based on the Tier 4 HCR¹⁶ (0.62) and has been above target since 2015.¹⁷
- The east/west split between the two stocks is very arbitrary and roughly similar trends in the stocks should be observed (noted the difference in fishing effort will have effects).
- An Industry member noted the introduction of management measures since 2005 (Deepwater trawl exclusion zones, Marine Parks etc.) and the current assessment placing the CPUE well above the CPUE_{Target}. The recent structural adjustment has reduced the otter board trawl fleet to historically low numbers, and in combination with the current spatial closures mean the stock will likely not be fished to the extent it once was.
- Industry were also of the view that the eastern stock is in better shape than the western stock.

The RAG accepted the Standard Tier 4 Deepwater Shark (West) assessment.

10. The RAG had a general discussion around the new Dynamic Tier 4 assessment approach prior to the Deepwater Shark East assessment results and noted the following key issues:

- There was discussion on the assumptions of the Dynamic Tier 4 assessment method. These discussions related to the choice of reference years and whether these represent when the stock was at MSY or MEY. There was also concern surrounding whether the reference years were appropriate. This is of increased importance with the Dynamic Tier 4 method as it can accommodate a historical catch series unlike the traditional Tier 4. There are several other stocks in which the RAG is no longer confident in the chosen reference periods (e.g., John Dory and Silver Trevally). The assumptions of target periods were necessary at the time the standard Tier 4 was developed to ensure the CPUE trend can be pegged to the reference period.
- Dr Pia Bessell-Browne (CSIRO) agreed that the current reference periods for some species are not appropriate and suggested there would be merit in a project to resolve this issue. MSE¹⁸ testing of the Dynamic Tier 4 method reflected real-world scenarios and use the agreed reference period and management decisions. The MSE testing caters for incorrect reference period assumptions, and even under these scenarios, the Dynamic Tier 4 showed improved performance when compared to the Standard Tier 4 (in terms of keeping stocks above limit

¹³ Codes for Australian Aquatic Biota

¹⁴ Sporcic, M. (2018). Tier 4 Assessments for selected SESSF Species (data to 2017). Technical Report prepared for SERAG Meeting 14-16 November 2018 and the Australian Fisheries Management Authority. CSIRO Oceans and Atmosphere, Hobart. 25 p.

¹⁵ Catch per unit of effort

¹⁶ Harvest Control Rule

¹⁷ Sporcic, M. (2023). Tier 4 Assessment for Western Deepwater Sharks in the SESSF (data to 2022). Technical paper presented to the SERAG, 2 - 3 November 2023. CSIRO Environment, Hobart. 17 p.

¹⁸ Management Strategy Evaluation

reference points). The Dynamic Tier 4 is effectively working to the same objectives as the Standard Tier 4 however, it is being more explicit in how it works.

- The issue of the Dynamic Tier 4 using the objective of MSY, rather than MEY, the latter being the target for Deepwater Sharks.

11. The RAG noted the following information from the presentation on Dynamic Tier 4 Deepwater Shark (East):

- The 2023 estimate of the RBC for Deepwater Shark (East) is 8.19 t, which is less than both the reported catch of ~12.2 t in 2022 and the Total Allowable Catch for the current SESSF season (24 t). The stock status of Deepwater Shark (East) in 2023 is estimated at 27% (between the limit reference point and breakpoint of the Harvest Control Rule; HCR). Catch at MSY for Deepwater Shark (East) was estimated to be 30.9 t.¹⁹
- The Dynamic Tier 4 method outperformed the Standard Tier 4 method in terms of performance measures and the risk-cost-catch trade-off in MSE testing. The Dynamic Tier 4 MSE results showed that there was a reduced risk of falling below the limit reference point, reduced catch variability and the same data collection cost compared with the Standard Tier 4 method.
- A catch history reconstruction has been created for Deepwater Shark (East) before 1997 (before the 1997-2004 reference period), however this series needs to go through approval before use within the assessment process, this will occur through the catch history project at SESSFRAG Chairs Meeting 2024.
- On request of AFMA, Dr Miriana Sporcic (CSIRO) presented catch projections of 10 t, 15 t, 20 t and the RBC to the RAG. These showed very similar results (minimal difference) for each scenario.

12. The RAG noted and discussed the following key points on the Dynamic Tier 4 Deepwater Shark (East):

- The Dynamic Tier 4 model was developed as part of the Multi Species Harvest Strategy Project; the model was created to address the need to have a measure for stock biomass as well as the ability to project this biomass. The model was developed to make the same assumptions as the Standard Tier 4.
- Mr Andrew Penney reiterated the issue that the model is forcing the stock status to cross B_{MSY} (40%) during the reference period where this value in the reference period for a Standard Tier 4 is notionally B_{MEY} (48%). Crossing this point is achieved by applying low production in the early years of the model.
 - CSIRO agreed to update the assumptions underpinning the Dynamic Tier 4 assessment (changing the reference period target to B_{MEY} (48%) instead of the current B_{MSY} (40%)) and re-run the MSE testing. The RAG noted there is no concern regarding the mathematics within the model.
- The plots generated from the Dynamic Tier 4 are accurately representing how a long lived species would typically behave, showing consistent catches year to year, clear responses to management arrangements that have been implemented and a slow improvement back to the target point.

¹⁹ Sporcic, M. and Bessell-Browne, P. (2023). Dynamic Tier 4 Assessment for Blue-eye Trevalla (data to 2022). Technical paper presented to the SERAG No. 2 Meeting, 2 - 3 November 2023. CSIRO Environment, Hobart.21 p.

- The 2018 Standard Tier 4 assessment produced an RBC of 10 t (the TAC was set higher), which is very similar to the RBC produced by this Dynamic Tier 4 assessment.
- Regarding catch histories - The RAG recommended if assessments are using models that use catch to inform the productivity of the stock, catch histories should be full and appropriate. There are currently considerable catch histories available for both the Deepwater Shark stocks and Blue-Eye Trevalla but that part of these catch histories for each stock still needed to be formally adopted for use via the RAG process and would be as part of the Catch History project to be presented at SESSFRAG Chairs meeting in 2024.
- If showing catch projections for future assessments a zero-catch projection would be helpful.
- Regarding large area closures protecting part of the stock - The assessment refers to exploitable biomass only (open areas). It is estimated that approximately 54% of the area where historical Deepwater Shark catches were taken are now protected by spatial closures²⁰ (used in the rationale for not applying discount factor for both the East and West Deepwater Shark stocks).
- The Marine Closures Project recommended, if managing biomass across a whole stock with a target of B_{MEY} (48%), in the areas left open you can manage the exploitable biomass to a lower target (species dependent). This may need a discussion at SESSFRAG in 2024 to determine whether populations in open areas should be managed to a different objective (targets).

2.1 Advice and Recommendations from Agenda item 2

13. The RAG recommended the RBC (326.7 t) produced by the Standard Tier 4 for the Deepwater Shark West assessment. The RAG supported the use of this RBC for a three-year MYTAC however noted that a Dynamic Tier 4 should be available (subject to MSE testing) in 2024.
14. The RAG noted significant spatial closures encompass grounds where 54% of Deepwater Shark historical catches came from, and this is used as the basis for not applying the discount factor.
15. The RAG recommended that Dynamic Tier 4 assessments continue to be pursued for both stocks in 2024 but that additional work is required before this method is accepted:
 - That the Dynamic Tier 4 use all available catch history, noting that the 'Catch History Project' will be presented to SESSFRAG Chairs meeting in April 2024, and the new catch histories created for both Deepwater Shark baskets will be available for use in the 2024 assessments.
 - The need to resolve the reference period target which is currently 0.40 (an MSY target) to the MEY target of 0.48 as traditionally used in the Standard Tier 4 and re undertake MSE testing.
16. Given the above, the RAG deferred basing its RBC advice on the Dynamic Tier 4 assessment for Deepwater Shark (East) and recommended using the 2018 Tier 4 Assessment RBC of 10 t as an interim until the work outlined above can be completed.
17. The RAG noted the substantial spatial closures within the SESSF reduced the threat to the stock if the TAC remains above the recommended RBC for the 2024-25 SESSF season.
18. Regarding the protection afforded by spatial closures for some species in the SESSF, the RAG recommended a project to better quantify the level of protection provided and its implications for managing to exploitable stock biomass verses total stock biomass for some species. Further, there is

²⁰Kuckey, I., Fuller, M., Moore, J., and Daley, R. (2009). Empowering Industry R&D: Redefining deepwater closures in the SESSF to reduce the impact on the commercial deepwater fishery and maintain adequate protection of orange roughy. AFMA Project 2008/836, report to AFMA, Canberra.

merit in discussing whether the population in open areas should be managed to a different objective. Policy writers should be consulted to ensure the new Harvest Strategy Policy adequately reflects this.

19. The RAG noted that there is a specific research project looking at habitat protection for Deepwater Shark specifically, but agreed that there are other species that the same type of approach should be discussed.

Action Item: The need to resolve the reference period target within the Dynamic Tier 4 which is currently 0.40 (an MSY target) to the MEY target of 0.48 as traditionally used in the Standard Tier 4 and re-do MSE testing.

3 Silver Trevally joint assessment - Recommended Biological Catch (RBC) advice (Part 1)

20. Dr Paul Burch (CSIRO) opened the agenda item provided the RAG with an update on the work that had been completed since SERAG 1, and the results of the assessment. The base case now includes the following updates:

- - i. Incorporates Francis weighting, a pre-specified Bias Ramp and estimated recruitment deviations to 2019 ;
 - ii. Uses a modified retention function for NSW trawl (which accounts for discarding after the 2007 introduction of a minimum legal length) which improved the fit to the left-hand side of the length distribution;
 - iii. Includes the estimation of additional selectivity parameters, such as releasing the restraint on the right-hand side of the NSW estuary and trap fleet's dome shaped selectivity to return to zero (i.e. double normal plateau selectivity), resulting in better fits to the length data (particularly for NSW trap); and
 - iv. Uses a smaller set of age data; samples from 1997 and 1999 were excluded once it became apparent that the data in these years came from <5 samples and the spatial coverage was poor.
- The Silver Trevally Steering Committee (STSC) reviewed the estimated recent recruitments and decided to cease estimating recruitment deviations from 2020 onwards (i.e. 2019 is the last estimated recruitment). The STSC decided to project the base case using the average from the last ten estimated recruitments (2010–2019). This would form the low recruitment scenario.
- At the SERAG 1 (2023) meeting it was agreed that a low recruitment base case would be used. The SESSF Tier 1 harvest control rule does not work correctly for low recruitment projections so SERAG needs to advise on fixed catch projections from one or more models.
- The RAG noted: Over much of the last 30 years recruitment values for Silver Trevally are estimated to be below average. There is only one year (1998) of age data included in the assessment, although there is a significant amount of length data.
- The assessment outcome from the base case (assuming recent recruitment and not the average of the stock recruitment relationship – aka the low recruitment scenario) projects biomass in 2024 to be 26.7% of unfished spawning biomass. If average recruitment is assumed (rather than recent recruitment), biomass in 2024 is projected to be 32.8%.

- Fishing mortality on the stock reached extremely high levels between approximately 1985 and 2010 and has declined in 2019-2022 ($F < 0.5$), corresponding with increasing CPUE and estimated biomass, indicating modest recovery.
- The assessment is very sensitive to the assumed value of natural mortality, with the base case assuming $M = 0.18 \text{ yr}^{-1}$. A likelihood profile suggests plausible values of M within the range of $M = 0.11 - 0.18 \text{ yr}^{-1}$, with a preferred value of $M = 0.14 \text{ yr}^{-1}$. Projected biomass in 2024 with plausible natural mortality values of between 0.11 and 0.18 yr^{-1} ranged between 12.8% and 26.7%.
- The RAG noted that likelihood profiles of M were not presented to the STSC as they were not ready in time. This precluded the STSC from considering likelihood profiles in its determination of M .
- The RAG noted that implementation of the SESSF Tier 1 harvest control rule within Stock Synthesis does not work correctly for low recruitment projections, as it projects future catches assuming recruitment is at the long-term average. Therefore, it is necessary for SERAG to advise on constant catch projections from one or more models in order to set a Recommended Biological Catch (RBC) for this stock.
- Fixed catch projections were presented for the base-case and the lower natural mortality ($M = 0.14 \text{ yr}^{-1}$) model scenario, both of which assume low recruitment.
- Fixed catch scenarios (50 t, 75 t, 100 t, 125 t, 150 t) to 2050 show in the medium to long term the assessment outcome is not particularly sensitive to the choice of natural mortality (whether M is 0.14 or 0.18 yr^{-1}). In the short-term, restricting catch to 150 t yr^{-1} sees the stock remain above the limit reference point for the base case, assuming $M = 0.18$ or moving from below the LRP to above the LRP for the model assuming $M = 0.14$.
- Future work recommendations:
 - i. Monitoring recruitment is critical to estimates of future stock status.
 - ii. Collecting unbiased age data should provide robust estimates of recruitment and allow the estimation of growth within the model.
 - iii. The lack of some large fish in the NSW trawl lengths after 2007 is inconsistent with the other fleets and may indicate a change in selectivity.
 - iv. Consider estimating natural mortality using a weakly informative prior to reduce subjectivity in the assessment.

21. The RAG discussed the following key points:

- Age data for the assessment was only from a singular year as result of low sample size numbers in other years. In moving forward with this assessment biological sample collection (age and length) should be collected as a priority in time to assist the next assessment.
- Preference towards considering a low steepness scenario was suggested by Mr Andrew Penney. The recruitment deviations are consistently above 1 when the stock was large and below 1 when the stock was low, suggested that the stock recruitment curve chosen is not quite what the stock was doing. However, the RAG noted they would need a good reason to deviate from the already conservative nature of the chosen base case.
- Dr Geoff Liggins (NSW DPI) noted NSW does not have a Harvest Strategy for Silver Trevally, but there is a NSW Harvest Strategy Policy (HSP) that the NSW TAF Committee follows. This

assessment would need to show with high probability that the stock is above the limit reference point (20%). If this is not the case, the NSW TAF Committee would consider any increase in their TAC to increase targeting and this would be against NSW HSP. Further, due to the results of the likelihood profile on M , NSW DPI will likely present both projections (Base case and sensitivity scenario $M=0.14$) as viable alternatives to the NSW TAF Committee.

- If models can estimate M this is often a preferred approach, however estimating natural mortality will not be possible for this year's assessment. Dr Geoff Tuck (CSIRO) noted most assessments where an estimation of M is used, there is generally a reasonable set of age data, however this assessment is only using the one year of age data. This further highlights the need for age data collection within the fishery.
- The RAG was comfortable with accepting the base case (low productivity scenario) as it reflects the decisions agreed to by SERAG 1 (2023) and the Silver Trevally Steering Committee.
- There is need for a research project to determine a Harvest Control Rule for low recruitment projections, as more species are falling into this basket within the fishery.

3.1 Advice and Recommendations from Agenda Item 3

22. SERAG accepted the Silver Trevally Joint assessment base case (low recruitment scenario).
23. SERAG noted the different rebuilding rates produced by the constant catch projections and that a range of catches allow for rebuilding to the target, albeit over different timeframes. SERAG noted recent catch levels have been around 100 t (For the 2022-23 fishing season, total commercial catch and discards were estimated to be 126.6 t²¹).
24. SERAG noted that under scenarios where M was reduced to 0.14 (with the low recruitment assumption) the rebuilding rates are similar to those presented in the base case (using an M of 0.18) in the medium to long term.
25. SERAG recommended that this year's advice should be integrated into a 3-year MYTAC²² which will allow time for ageing samples to be collected to inform the next assessment.

Action Item: AFMA to add Silver Trevally biological sampling to the Data collection plan for the SESSF.

4 Research proposal for validating catch and age models and data sources for data-limited Orange Roughy stocks

26. Dr Paul Burch (CSIRO) opened the agenda item seeking RAG advice on the project proposal to validate catch and age models, and data sources for data limited Orange Roughy stocks.
 - The RAG noted SESSFRAG requested further work be undertaken before this type of assessment approach is adopted and recommended taking the data rich eastern zone Orange Roughy assessment, removing the acoustic biomass indices and then undertaking systematic data reduction of the annual age data, stripping data out, data set by data set, and comparing how the assessment performs with the base case model. SESSFRAG also discussed the utility of

²¹ ABARES Fishery Status Report 2023

²² Multi Year Total Allowable Catch

utilising otolith weight data as a proxy for age and length data to provide information on stock status. The project proposal was developed to address these matters.

27. The RAG noted the following points about the project:

- The simulation will evaluate the catch and age-based assessments for Orange Roughy. It will either:
 - i. Use systematic data reduction (removing data sequentially to determine the impact of data sources and quantity); or
 - ii. Simulate data directly from Stock Synthesis
- The objectives of this component of the proposed study are to:
 - i. Evaluate the use of catch and age assessments for Orange Roughy to identify the conditions where these methods are appropriate for data limited stocks.
 - ii. Prioritise otolith samples for ageing to maximise the effectiveness of future assessment of data-limited Orange Roughy stocks.
- CSIRO propose to test the impact of the following changes in the age data:
 - i. The number of years of age data,
 - ii. When the age data were sampled, either during the early part of the development of the fishery, the peak fishing, or recent years,
 - iii. The sample sizes for annual age frequency data.
- CSIRO propose to also investigate the impact of misspecification (bias) in:
 - i. The impact of bias using 'low' and 'high' scenarios for catches,
 - ii. natural mortality, and
 - iii. steepness of the stock recruitment relationship.
- CSIRO propose to model the relationship of otolith age and weight for Orange Roughy using a Generalised Linear Model (GLM) (often highly correlated however relationship is often non-linear, and precision is lower in otolith weight). Use the GLM outputs to specify the bias and precision of otolith weight derived age frequencies.
- Use the same simulation framework to evaluate:
 - i. The number of years of otolith weight derived age frequencies,
 - ii. When the otolith weight data were collected, and
 - iii. The inclusion of both age and otolith weight derived age frequencies.
- Use the same simulation framework to evaluate:
 - i. The number of years of length frequencies,
 - ii. When the length data were collected, and
 - iii. The inclusion of both age and otolith weight derived age frequencies in addition to length data.
- Following input from SERAG and GABRAG the project will be negotiated with AFMA and a summary presented to the 2024 SESSFRAG Chairs meeting. This work would be expected to

take 4-6 weeks depending on specific components that are funded. Results would be presented to the 2025 SESSFRAG Chairs' meeting. SESSFRAG could then provide advice on the application of the finding of this research to the assessment of Cascade and GAB Orange Roughy in 2025/26 (2025 calendar year).

28. The RAG noted the following key points:

- If otolith weight is as reliable to determine ages as ageing otoliths, it would be easier (resources to age vs resources to weigh) to gather information to use in an assessment with the caveat that it is important to understand if anything happens to the RAGs ability to estimate assessment variables if moving to a lower information model. Dr Paul Burch (CSIRO) noted concern is around bias and the simulations will provide information on this.
- Models that use age and length with no catch data are restricted to give estimates of *F*. Without a population model you do not get a biomass estimate. SESSFRAG made the decision to use catch data where possible.

4.1 Advice and Recommendations for Agenda Item 4

29. SERAG supported the proposal and recommended Dr Paul Burch (CSIRO) write up the formal proposal to present to SESSFRAG Chairs meeting 2024.

5 Rebuilding Species

5.1 Rebuilding Species Annual Reviews

5.2 Rebuilding Species TAC advice

30. Dr Mark Grubert (AFMA) opened the agenda item seeking RAG advice on the annual review of rebuilding species and TAC advice.

31. The RAG noted the following key background information.

- There are seven species/stocks managed under rebuilding strategies in the SESSF; Eastern Redfish, Eastern Gemfish, Blue Warehou, Orange Roughy (excluding the Eastern and Cascade Plateau stocks), School Shark, Southern Dogfish and Harrison's Dogfish. Progress against the rebuilding strategies for School Shark is reviewed through the Shark Resource Assessment Group (SharkRAG).
- Five spatial closures in the CTS²³ took effect on 1 May 2023 through amendments to the (Fisheries Management (Southern and Eastern Scalefish and Shark Fishery and Small Pelagic Fishery Closures) Direction 2021), specifically the addition of schedule closures 40–44. These are known as the Gabo, Conran, Flounder/Kingfisher, Babel Island and South East Tasman trawl closures, respectively (moving from North to South). All five closures prohibit the use of all trawl methods with the exception of the Babel Island trawl closure, where the Danish seine method is allowed.
- Earlier this year, the Department of Agriculture, Fisheries and Forestry received tenders to surrender 21 Trawl Boat Statutory Fishing Rights (SFRs) from 18 entities at a cumulative cost of \$19.5 million. This process was completed on 30 June 2023 and reduced the number of CTS Trawl Boat SFRs from 57 to 36. An initial review of logbook data for the 2023–24 SESSF season

²³ Commonwealth Trawl Sector of the Southern and Eastern Scalefish and Shark Fishery

shows a reduction in both days fished and the number of shots by gear type, compared to the year-to-date (YTD) values averaged over the previous five seasons (2018–22).

- AFMA has received funding to trial Electronic Monitoring (EM) across a range of Commonwealth fisheries/sectors, including the CTS. AFMA wishes to determine if, and how, EM can be used to increase/improve the collection of verifiable data on catch composition, discarding, habitat impacts and protected species interactions in the CTS in a cost-effective manner (relative to existing observer coverage). Improving the quality of data on rebuilding and depleted species (particularly with regard to discarding) will be a major focus of this work.
- Revised Danish seine gear controls also came into effect 1 May 2023 through changes to clause 39(d) of the SESSF Trawl Boat concession conditions. These changes included an increase in the minimum mesh size for Danish seine gear from 75 to 80 mm, specifying a minimum codend length and the inclusion of other measures to avoid a constriction point in the net while in use.

32. The RAG noted the following information from the presentation:

- An Industry Member noted the Orange Roughy Rebuilding Strategy should excise mention of the Eastern Orange Roughy and Cascade Plateau Orange Roughy stocks as they are no longer rebuilding.
- AFMA needs to start thinking about alternative rebuilding targets for species that have environmentally induced regime shifts (e.g., Jackass Morwong) or may not be able to rebuild to the traditional targets. Options need to be considered at a Departmental and Policy level for these scenarios, there is a strong need for explicit recognition within formal mechanisms to allow for alternative management options. The Dynamic B_0 project will provide recommendations of this nature.
- An Industry member noted the Danish seine gear changes were an industry proposal that was initiated prior to any discussions about rebuilding closures. AFMA and SETFIA are in discussions about re-mapping the eastern edges of the rebuilding species closure to ensure they are accurate to the depths they have been implemented to protect.
- AFMA Compliance is working on tagging Whiting and Flathead codends used by Danish seine vessels. A Scientific member noted Danish seine in the CTS should be considered Scottish seine, and that the way they operate affects assumptions when specifying gear assumptions. The RAG requested to see AFMA Standard Operating procedures for measuring fishing nets.
- Quota has not been bought out, and the rebuilding closures have dispersed fishing effort into areas of lower fish abundance. The initial reduction in fishing effort means we can now predict that there will be significant impact on key fishing indicators, this will cause issues for assessments moving forward. This must be factored in a formal quantitative way within the assessment process. Flathead CPUE data will also need to be time blocked from the introduction of the new Danish seine measures.
- Redfish is being considered by TSSC²⁴ for EPBC²⁵ listing.
- Noting sample coverage shown in the presentation, the RAG wanted to ensure that the ISMP²⁶ is accurately reflecting the coverage of the fishery itself and recommended that AFMA utilise samplers at the Sydney Fish Markets to aid in this.

²⁴ Threatened Species Scientific Committee

²⁵ Environment Protection and Biodiversity Conservation Act 1999

²⁶ Integrated Scientific Monitoring Program

- Discussed how rebuilding species will be measured moving forward, noting main fishing indicators have been significantly impacted. Dr Tim Emery (ABARES) noted that it is very difficult to track performance of the rebuilding strategies against the requirements of the HSP and track rebuilding to above the LRP as required under the HSP²⁷ as we have lost the index of abundance for these stocks. Dr Emery noted the Redfish EPBC listing process is going to require strict performance metrics to track stock rebuilding for retention of “Conservation Dependent” listing.
- The Close-Kin Project for monitoring has been funded and AFMA and SETFIA/SSIA²⁸ are in contract negotiation talks to progress sample collection methodology (Action Item from [SESSFRAG](#)).
- The RAG suggested putting in time and effort to try and understand what catch rates are likely to do within open areas to represent rebuilding, without losing sight of the fact that a significant proportion of the catch is protected by rebuilding closures. AFMA confirmed a project or an agreed method to look at catch rates within open areas should be a priority moving forward and is worth undertaking. The work should focus on determining an agreed method for measuring rebuilding species moving forward.
- Industry members noted the Jackass Morwong year to date catches are very low. The RAG noted the numbers are retained catch only (no discard estimates) and there seems to be an increase in seasonal catches of Jackass Morwong in the later part of recent seasons. ISMP estimated discards for Eastern Jackass Morwong in the most recent assessed year (2022) have increased.
- A Scientific member noted if an ecological risk assessment were performed on Jackass Morwong right now the overlap score would likely be low resulting in low risk for the stock. There needs to be formal policy within HSP management to recognise the significant management actions taken (spatial closures) to reduce risk to the stock. The RAG noted that if a stock is formally assessed (Tier 1 etc.) ERA’s are not conducted on them.
- There is a need to look at current selectivity of fishing gear, so the fishery is not catching fish below a size which would normally be retained. Selectivity should reflect the market to avoid discarding the fish that represent a stocks first opportunity to recover. In line with the closures, implementation of management measures for gear selectivity in both otter board trawl and seiners that eliminates the unnecessary discarding of rebuilding species should be a priority. The RAG noted the last prescribed aspect of work in Matt Broadhurst trawl selectivity project will be completed next year. Reports are generally provided to the RAG within 2-3 months of project completion.
- Mr Simon Boag noted during the implementation of rebuilding species closures SETFIA asked AFMA about the possibility of seasonal closures based upon seasonality of Jackass Morwong. He explained that AFMA responded that they did not see the sufficient seasonality of catches to warrant temporal closures.

5.3 Advice and Recommendations from Agenda Item 5

33. SERAG noted the spatial closures, structural adjustment and gear requirement changes, while beneficial to the species, have significant impacts on the key index of abundance (CPUE) for these rebuilding

²⁷ Harvest Strategy Policy

²⁸ Southern Shark Industry Alliance

species and that this makes it very difficult to measure the performance of the rebuilding strategies. SERAG recommended other potential measures of performance such as risk assessments need to be looked at for these species.

34. SERAG noted the recent structural changes of the fishery and highlighted the need to ensure the selectivity of trawl fishing gear is consistent with the outcome's management is trying to achieve, in particular the reduction in discarding of rebuilding species.
35. SERAG noted estimates of total mortality (landed catch plus discards) following implementation of the closures will not be available until next year.
36. SERAG noted there is seasonality in Jackass Morwong catches with this current season so far not incorporating historically high catch periods.
37. SERAG noted there is less value in a restricting a MYTAC on Flathead based upon the implementation of the new rebuilding species closure however the MYTAC should not be increased until further information is available at the 2024 SERAG meetings.
38. SERAG noted there is no new information to change the existing bycatch TACs therefore recommended maintaining them at existing levels.
39. SERAG noted it previously agreed (at the September 2023 meeting) to manage Orange Roughy caught by the East Coast Deepwater Trawl (ECDWT) sector through a bycatch limit (of 50 t) and that this decision-making process will be incorporated into the rebuilding species TAC advice in future years.

Action Item: AFMA to provide the RAG with the Standard Operating Procedures for measuring gear (net) requirements in the SESSF.

Action Item: AFMA to ensure that spatial distribution of samples collected is representative of the area fished as best as possible. Look into the potential of the ISMP to utilise the NSW DPI samplers in the Sydney Fish Market for sample collection of SESSF species.

6 Blue-Eye Trevalla (Slope) Dynamic Tier 4 – RBC advice

40. Dr Miriana Sporcic (CSIRO) opened the agenda item, reminding the RAG that the original plan had been to present the results of the Dynamic Tier 4 Assessment for Blue-eye Trevalla. However, based on the discussion and resolution under Agenda Item 2, the RAG had requested additional work be undertaken on the new approach before it could be accepted. Further, the RAG recommended that the standard Tier 4, that had originally been undertaken for comparison with the Dynamic Tier 4 and which was presented at the SERAG #1 meeting, be used as the basis for RBC advice for Blue-Eye Trevalla.
41. The RAG noted and discussed the following information from the presentation on Standard Tier 4 Blue-eye Trevalla (Slope):
 - The 2023 RBC was approximately 275.16 t, corresponding to a 26.08 t increase compared to the 2022 RBC, i.e., 249.08 t. This increase in RBC between consecutive assessments can be mostly attributed to the most recent data point (2022) in the updated standardized CPUE series being relatively high, which resulted in a higher most recent four-year average compared with the

previous assessment. The estimated RBC (to be applied in the 2024-25 fishing season) is greater than the reported catch in 2022 (approximately 263.18 t).²⁹

- An Industry member considered that the assessment reflects what they are observing on the water. Prior to the large reduction in the Blue-eye Trevalla TAC there was latent effort in the fishery. Following the reduction in quota, vessels started targeting Pink Ling, catching little Blue-Eye Trevalla. The industry member was of the view that the increase in RBC produced by this assessment reflects a recovery of the stock.
- The standardisation should explore targeting effects within broad areas, then narrow the focus to a finer scale if needs be.
- Industry also noted that there are different ways to target Pink Ling and Blue-Eye Trevalla in the exact same area and suggested separating dropline and auto line fishing methods from each other and only using auto line data from 2002 onwards. The RAG noted the series are currently separate analysis that are stitched together to increase the timeseries. The RAG noted the value in standardising CPUE and using the whole timeline while also focusing on trying to improve the process.
- Further work to revise the CPUE standardisation including targeting effects, species associations and area effects should be conducted prior to a Dynamic Tier 4 assessment in 2024 (subject to review of the revised MSE results and if SERAG still supports this method). The diagnostic results should be presented and discussed next year.
- There is potential for a broad scale review of reference periods used in Tier 4s not only for Blue-eye Trevalla, but other stocks as well.
- Dr Ian Knuckey noted if we have enough information to perform a Dynamic Tier 4 for this stock, it might be worth considering progressing a Tier 1 assessment in the future. Pursuing a Tier 1 assessment requires the same work to be undertaken as outlined above.
- Orca depredation is still an issue for the fishery. Depredation fields are included within the logbooks and it is an area of reporting that should be worked on and improved.
- Dr Miriana Sporic (CSIRO) noted there is a provisional catch history created back beyond the reference period. This series requires further work, including identifying seamount proportion of catch, before it could be used in an assessment.

6.1 Advice and recommendations from agenda item 6

42. SERAG recommended the RBC produced by the Standard Tier 4 for Blue-Eye Trevalla (slope) - 275.16 t while noting the work identified below to progress the assessment of Blue-eye Trevalla.
43. SERAG recommended CSIRO work to revise the CPUE standardisation including targeting effects, species associations and area effects prior to updating the Dynamic Tier 4 assessment in 2024 (subject to review of the revised MSE results).
44. SERAG recommended that the complete catch history for Blue-Eye Trevalla be used in the Dynamic Tier 4 assessment, noting the results of the Catch History Project will be considered at the SESSFRAG chairs meeting in April 2024

²⁹ Sporic, M. (2023). Tier 4 Assessment for Blue-eye Trevalla (*Hyperoglyphe antarctica*) (data to 2022). Technical report presented to the SERAG, 2 - 3 November 2023. CSIRO Environment, Hobart. 16 p.

45. SERAG recommended establishing a Blue-Eye Trevalla Working Group to discuss progressing the assessment approaches (Dynamic Tier 4 and potential Tier 1). The working group should convene to review the results of the intersessional work (e.g., CPUE standardisation improvements) required to update the Dynamic Tier 4 assessment prior to the data group meeting to ensure the adequate decisions are made in time for future assessments.
46. SERAG recommended biological samples for Blue-Eye Trevalla should be added to the ageing plan as a priority.

Action Item: CSIRO to revise the CPUE standardisation including targeting effects, species associations and area effects prior to Dynamic Tier 4 assessment in 2024 (subject to review of the revised MSE results SERAG still supports this method).

Action Item: A Blue-Eye Trevalla Working Group be established to progress the assessment approaches for Blue-Eye Trevalla. The working group should convene to review the results of the intersessional work (e.g., CPUE standardisation improvements) prior to the SESSFRAG data meeting to ensure the adequate decisions are made in time for future assessments.

7 Hagfish – Non-Quota TAC advice

47. Ms Sally Weekes (AFMA) opened the agenda item seeking RAG advice on the Hagfish TAC for the 2024-25 fishing season.
48. The RAG noted the following key background information.
 - Improving the efficiency and scope of the collection and reporting of data (specifically relating to quantifying fishing effort) is being progressed through the development and implementation of an electronic trap logbook (e-log), as the current paper logbooks do not provide adequate fields to record information. The software is currently being developed and tested by an e-log vendor to be implemented in the near future. Due to operational constraints in 2023, there has been no progress on the escape hole trial, however, the current scientific permit to support this work is still valid until the end of this year.
 - In 2022, SERAG provided continued support for the escape hole trial and reiterated advice that data collection should be improved to ensure a minimum standard (which can be used to support a stock assessment). Without meeting these objectives and with no new information, SERAG could not review the existing TAC or management advice. AFMA is seeking confirmation on whether SERAGs advice or position has changed, relative to the management of Hagfish for the 2024-25 SESSF fishing season.
49. The RAG noted the following key points:
 - Reconfirmed the need for appropriate effort data to be collected and analysed, as a development fishery the RAG should be seeing a lot more information. Advice on how to structure effort data collection to feed into catch per unit effort analysis has been provided previously. The RAG is waiting for these data to be provided, before further advice can be provided.
 - Ms Sally Weekes (AFMA) noted the significant time and effort to process paper logs into a database will be reduced now Elogs have become available for the operator.

7.1 Advice and recommendations from Agenda item 7

50. SERAG noted the advice from 2022 which was its continued support for the escape hole trial and reiterated advice that data collection should be improved to ensure a minimum standard (which can be used to support a stock assessment). Without meeting these objectives and with no new information, SERAG could not review the existing TAC or management advice.
51. SERAG also noted it would like to see aggregated data to inform its advice on Hagfish in future meetings.

8 Advice on future assessments

52. Dr Geoff Tuck (CSIRO) opened the agenda item seeking clarity and confirmation from the RAG on a number of different assessment processes.
53. What a “Partial Assessment option” includes:
 - Some variations of assessment ‘updates’ have been performed in the past (e.g., Tiger Flathead, School Whiting). CSIRO have reflected on these and believe there is a more robust appropriate way to perform this.
 - This new process would include a full bridging process including new data and model tuning.
 - The process would not include model structure exploration, sensitivity analysis, likelihood profiles, retrospectives, jitter etc.
 - The report produced from this process would contain only a summary of results, similar to the extended summary in the Silver Trevally report provided to SERAG 2. CSIRO would also provide the r4ss model diagnostic plots.
54. The RAG noted that the “Partial assessment option” provides more confidence than just inputting new catch data and new CPUE information into a untuned model. It will be a tool utilised by AFMA in situations that require it, for example if an additional Tier 1 is identified as required and resources are limited.
55. Regarding undertaking a full assessment of Silver Warehou rather than a ‘partial update’ as originally scheduled, the RAG agreed that if there are concerns around the stock, a full Tier 1 assessment should be undertaken.
56. Regarding undertaking a Tier 1 assessment in 2024 on just the eastern stock of Pink Ling, the RAG noted the following:
 - The last Pink Ling assessment was conducted in 2021 in CASAL. This process had considerable filtering of composition data and a different structure to the typical CSIRO CPUE standardisation method and that given CSIRO is undertaking the assessment in 2024 there will be additional work to transition it to an SS3 assessment. The establishment of a Pink Ling Working Group was proposed to provide recommendations on:
 - i. How to bridge the CASAL assessment to SS3
 - ii. How the most recent data will be incorporated into the new assessment
 - iii. Appropriate CPUE standardisation methods
 - iv. Approve the model to be applied and corresponding sensitivities.
 - Regarding the work to be undertaken for the Pink Ling assessment, the RAG noted that while it would be helpful to replicate the results from the 2021 assessment in the first step in the

bridging analysis it would come at significant extra cost for the assessment. It was shown when undertaking the last assessment that the two methods could replicate each other.

- Dr Geoff Tuck (CSIRO) noted they are still proposing a bridging component from 2021 assessment to the new assessment. The methodology used in 2021 was very different from the usual CSIRO methodology. The Pink Ling Working Group would consider all the new data as well as why and how the last assessment was performed.
- The RAG supported the idea of only running an eastern assessment (not west) and therefore rolling over the TAC in the West, noting a discount factor might be considered. CSIRO was asked to provide appropriate advice on a suitable discount factor to be applied to the Western proportion of the TAC (noting it is modelled well above the target) and that the Multi Species Harvest Strategy will provide advice on discount factors to the SESSFRAG Chairs meeting in 2024. CSIRO confirmed cost efficiencies in only running an assessment on the eastern stock.

8.1 Advice and recommendations from Agenda Item 8

57. SERAG recommended the CSIRO proposed 'Partial Update' methodology become an available assessment option in the future.
58. SERAG recommended a Full Tier 1 assessment is performed on Silver Warehou in 2024 given some concern for the stock.
59. SERAG recommended only updating the Pink Ling Tier 1 assessment in the east which will reduce the workload (and fee) for the assessment team given that Silver Warehou is now a full assessment, rather than a partial update and that there is little concern for the western Pink Ling stock.
60. SERAG recommended creating a Pink Ling Working Group to advise on the transition of the Pink Ling (East) Tier 1 assessment from the CASAL to SS3 methods.
61. SERAG recommended that CSIRO provide advice to the RAG on an appropriate discount factor to be considered for Pink Ling (West) for rolling over the TAC.

Action Item: CSIRO establish (with AFMA's assistance) a Pink Ling Working Group to advise on the Pink Ling (East) Tier 1 assessment.

9 FRDC Project Update

- Dr Karen Evans (CSIRO) opened the agenda item and provided an update on the FRDC project Biological parameters for stock assessments in South Eastern Australia.
- Progress to date:
 - Workshop was held in May 2023 and identified 6 priority projects for potential development.
 - Four PhD projects being developed, identification of samples underway (SEA-MES, preparation of sample/data agreements).
 - Initial discussions on mid-career project focused on ML methods for image analysis of otoliths for ageing (CSIRO-FAS).
 - Placement of students on second SEA-MES voyage (May 2024) and potentially third (November 2024).
- Project development to date:

- Trait-based approaches to identifying early warning signals of stock collapse and recovery. Initial discussions have begun but have not progressed.
 - Determining the environmental drivers of recruitment success. No interest to date.
 - Evaluation of the stock structure of east coast commercial scale fish stocks of Jackass Morwong, Blue Grenadier and Tiger Flathead. CSIRO and USC developing scholarship proposal with planned start in early 2024, first round of samples collected by SEA-MES project.
 - Evaluation of the influence of food webs and other ecosystem dynamics on stock resilience. CSIRO and USC developing scholarship proposal with planned start in early 2024, first round of samples collected by SEA-MES project.
 - Biology and assessment of secondary/emerging fisheries. QMS project approved, PhD candidate identified, start in Feb 2023 (pending scholarship).
 - Evaluation of changes to the trophic systems in the SESSF, associated drivers and future prospects. CSIRO and USC developing scholarship proposal with planned start in early 2024, first round of samples collected by SEA-MES project.
- Mid-2024 an annual symposia is planned bringing researchers involved in projects together with other fisheries scientists, fisheries assessment scientists, fisheries managers, and industry to provide opportunities for feedback and review of projects, building of networks.

62. The RAG noted the following key points:

- There are older biological samples that are available. While they may not have been sourced properly it does not mean they are not informative. The RAG questioned how we decide which samples to use when it comes to updating biological information in our assessments. Dr Karen Evans (CSIRO) noted at this stage it is not known if things have changed. If things have not changed and they are augmenting the older data, it means gaps can be filled in historic data sets. If things have changed then that will be a process of working with the assessment scientists and the RAGs.
- Dr Ian Knuckey noted a simple thing such as length and weight relationship is dependent on sample collection and will not necessarily represent a temporal change but perhaps a spatial change.

10 Silver Trevally joint assessment – RBC advice (Part 2)

63. Agenda item not needed as sufficient advice received in Agenda Item 3.

10 SESSF Research Proposals for 2024–25 and Priorities for 2025–26

64. Dr Mark Grubert (AFMA) introduced the agenda item with the purpose of SERAG providing advice on research priorities to be included in the Southern and Eastern Scalefish and Shark Fishery (SESSF) Annual Research Statement 2025–26 and seeking feedback on the research proposals submitted in response to the AFMA call for research for the 2024–25 financial year. Research proposals were assessed on their relevance to identified priorities, clarity of objectives and benefits, likelihood that the outputs will be adopted, value for money, consultation, and data sharing.

65. The RAG noted there were no proposals received for the following research priorities:

- *Pink Ling stand-alone stock assessment 2024/25* (this assessment is now to be undertaken by CSIRO)
- *Independent review of Blue Grenadier Tier 1 stock assessment in 2024/25*

66. The RAG provided the following feedback on the received proposals:

Industry-based cost-effective acoustic monitoring program of Blue Grenadier fishery to support management decisions – 2024 surveys

- The proposal cost has increased slightly due to the CSIRO co-investment amount slightly decreasing.
- Blue Grenadier is a very important stock economically for the SESSF, and the acoustic survey is important for stock assessment.
- Need to ensure there is an expectation that the survey gets done.
- The proposal was supported with all criteria scoring a 2 (maximum).

Evaluating contributing factors to catch per unit effort standardisation in the SESSF

- The recommended Blue-eye Trevalla CPUE improvement will be separate to this project.
- Fishing power effects in the gillnet fishery is already included in an existing project “Improved CPUE standardisations for sharks”.
- A generic approach on species was not seen as beneficial, focusing on specific species will produce more tangible results.
- Final proposal ranking was postponed until the full proposal has been received.

Deepwater shark habitat characterisation

- The project stemmed from issues with the assessments for Deepwater Shark, and a resulting Deepwater Shark Working Group recommendation to look further into habitat work.
- ABARES noted anything to further define habitat, benefit of closures and species-specific risk will be useful for ABARES determinations.
- The proposal was supported with all criteria scoring a 2 (maximum).

67. The RAG was asked to provide advice on the research priorities to be included in the 2025-26 research statement.

68. The RAG noted the following key points on the research priorities:

Obtaining discard data and fish lengths using electronic monitoring

- EM trials in the Great Australian Bight trawl fishery are beginning under funding through the AFMA EM project. AFMA suggests removing the item and pursuing through the EM Project funding channel.
- The need to have a sharper focus on EM particularly the ability to collect discard data and fish lengths, coming from the RAG. At GABRAG (2023) Dr Andrew Penney recommended advice to the EM team for consideration in the planning of the EM trawl trial. The trial should ideally provide some feedback to SERAG.
- The RAG recommended leaving the priority on the list.

Economic Data collection

- AFMA wide work on economic data collection is currently reviewing the interpretation of project objectives (led by the PEER team).
- The RAG recommended leaving the priority on the list.

Independent review of the Tiger Flathead Tier 1 stock assessment

- Proper process suggests assessments should be reviewed at least once. The person required to perform this task should be qualified and likely be found overseas to provide independence.
- This is a very important stock for the SESSF economically.
- The RAG recommended leaving the priority on the list.

69. The RAG agreed to add the following new priorities in the Research Plan:

- ‘Blue Grenadier acoustic survey in 2025’ be included in the SESSF Annual Research Statement 2025-26.
- Dr Ian Knuckey noted at some point the RAG will need to work out how to include the outcomes of the Multi Species Harvest Strategy project. Noting the current work being undertaken, the likely next step for this project is going to be a report presented to SESSFRAG 2024. **The RAG recommended adding the priority “Identify work required to transition from MSHS recommendations to policy implementation”.**
- Ideal to have a set of rules to have constant catches projections to present to the RAG with accompanying guidelines around low recruitment scenarios. **The RAG recommended adding the priority ‘Development of guidelines for harvest control rules when using low recruitment projections.’**
- The already completed work by Dr Geoff Tuck (CSIRO) to look at the effect of spatial closures should be considered; however, the RAG should not recommend undertaking the work again. Any future work should focus on implementation of managing stocks outside the closures. Dr Andrew Penny noted we should move to spatially explicit risk assessment methods.

70. The RAG noted

71. The Chair ended 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

	<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>Member – Victorian Marine and Coastal Council</p> <p>Member – The Geelong Agri Collective</p> <p>Current projects:</p> <p>FRDC 2018-021 – Development and evaluation of multi-species harvest strategies in the SESSF</p> <p>NSW 2021-1238 – Developing a harvest strategy framework for Aboriginal cultural fishing in NSW</p> <p>DAWE Project – Multi-sector fisheries capacity building</p> <p>AFMA 2020-0807 – Bass Strait Scallop Fishery Survey – 2020-22</p> <p>FRDC 2019-027 – Improving and promoting fish-trawl selectivity in the SESSF and GABTS</p> <p>FRDC 2018-021 – Development and evaluation of SESSF multi-species harvest strategies</p> <p>Traffic Project – Shark Product Traceability</p> <p>Sea Cucumber Ass. – Design and implementation of various sea cucumber dive surveys.</p> <p>Australia Bay – Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery</p> <p>Expert Witness – Gladstone Harbour development impacts</p>
Mr James Woodhams	<ul style="list-style-type: none"> • 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 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	<p>Sole Director of Mures Fishing P/L</p> <p>Commonwealth fish receiver permit</p> <p>Tasmania fish processing licence</p> <p>Scalefish hook boat SFR, SEQ Quota Holding Permits, Auto longline fishing permit</p> <p>High Seas permit</p> <p>Blue eye trevalla SFRs, Ling SFRs, Ribaldo ITP</p> <p>Mixed species Individual Transferable Quotas (ITQs) and SFRs</p> <p>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)</p>

Mr Simon Boag	EO SETFIA (trawl) EO SSIA (sharks) EO SPFIA (SPF) <ul style="list-style-type: none"> • 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 Miriana Sporcic	CSIRO Assessment Scientist. Acquiring funding for research purposes. Project leader CSIRO Ecological Risk Assessments
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 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.
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.
Mr Ian Stockton	NSW DPI Fisheries Manager. No pecuniary or other interests.
Mr Andy Warmbrunn	Fishery Manager, Department of Natural Resources and Environment Tasmania No pecuniary or other interest

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.
Dr Lara Ainley	Employed by AFMA, Manager Gillnet, Hook and Trap. No interest, pecuniary or otherwise.
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.
Ms Jennifer Power-Geary	Employed by AFMA, Senior Management Support Officer. No pecuniary or other interest.
Ms Rachel Downes	Employed by AFMA, Senior Management Support Officer, No pecuniary or other interest.

Attachment B – Progress of Action Items from previous SERAG meetings

Complete/Redundant

Underway

Yet to start

Advice required

Table 1. Progress of action items from previous SERAG meetings

Meeting and Agenda Item	Description	Responsible entity	Timeframe	Status
November 2019 Action items review	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	<u>Underway.</u> (No change since SERAG 1 2023) 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.
November 2022 Agenda Item 2: Data Updates	AFMA to review observer requirements on Blue Grenadier factory vessels to ensure appropriate data are collected.	AFMA	As soon as possible	<u>Underway.</u> (No change since SERAG 1 2023) 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

				<p>the impact on data collection from the broader fishery.</p> <p>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.</p> <p>AFMA will pursue this idea with two companies that operate the NZ factory freezer boats.</p>
November 2022 Agenda Item 12: SESSF Research Priorities	AFMA to develop a research plan to support data collection in rebuilding species closures.	AFMA	As soon as possible	<p><u>Underway.</u> (No change since SERAG 1 2023)</p> <p>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 <i>RV Investigator</i> during the first voyage of the Sout-East Australian Marine Ecosystem Survey (SEA-MES).</p> <p>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.</p> <p>AFMA will revisit the need for a sampling plan for rebuilding closures once the boundary depth evaluation is completed.</p>
September 2023 Agenda Item 2:	AFMA and CSIRO to collaborate and add a step in the Data Summary process to ensure that research catches are	CSIRO/AFMA	2024 SESSFRAG Data Meeting	<u>Not yet started.</u>

	Data Updates	identified and treated separately to logbook data (to avoid issues associated with scaling up research catches).			
	September 2023 Agenda Item 5: Blue-Eye Trevalla (slope) assessment	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.	AFMA	As soon as possible	<u>Completed.</u> The AFMA data team have confirmed that (for reasons unknown) the 1997 and 1998 non-trawl Blue-Eye Trevalla (slope) CDR data was not included in previous data dumps. The data held by CSIRO now reflects that in the AFMA data warehouse.
	September 2023 Agenda Item 5: Blue-Eye Trevalla (slope) assessment	CSIRO to include catch records for Blue-Eye Trevalla (slope) prior to the traditional reference period (1997) when undertaking the 2024 assessment.	CSIRO	SESSFRAG data meeting 2024	<u>Underway.</u> The early catch time series for Blue-Eye Trevalla (slope) is available and will be presented to SESSFRAG in 2024 for consideration and use in the 2024 assessment.
	September 2023 Agenda item 6: Deepwater shark assessments	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.	CSIRO	As soon as possible	<u>Completed.</u> The decline in stock status of Deepwater Shark (East) occurs because the reference years are used to set the target catch, and therefore, the MSY level during this period. The model then estimates below average recruitment deviations to reduce biomass, and therefore stock status, to reach the MSY level during the reference years.
	September 2023 Agenda Item 9: Cascade Orange Roughy	CSIRO and FAS to investigate if Cascade Orange Roughy sampled in 1999, 2004, 2020 and 2021 were from spawning aggregations.	CSIRO/FAS	SESSFRAG data meeting 2024	<u>Not yet started.</u>
	September 2023 Agenda Item 9: Cascade Orange Roughy	CSIRO/FAS/AFMA to discuss an Orange Roughy ageing plan including ageing requirements for each Orange Roughy	CSIRO/FAS/AFMA	SESSFRAG data meeting 2024	<u>Advice required.</u> AFMA suggests that an Orange Roughy ageing workshop be convened in 2024 to discuss ageing requirements and planning for Cascade,

		stock, and the order of priority for assessments.			Eastern, Western and Great Australian Bight Orange Roughy stocks. The workshop would include representatives from both SETFIA and GABIA and discuss the other Orange Roughy action items from the September 2023 SERAG meeting.
September 2023 Agenda Item 9: Cascade Orange Roughy		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)	CSIRO	SESSFRAG data meeting 2024	<u>Not yet started.</u>
September 2023 Agenda Item 14: Western Orange Roughy Research Program (WORRP)		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.	CSIRO/FAS	SESSFRAG data meeting 2024	<u>Not yet started.</u>
September 2023 Agenda Item 14: WORRP		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.	AFMA/SETFIA	As soon as possible	<u>Not yet started.</u>

Attachment C – Actions Arising from SERAG 2 November 2023

	Meeting and Agenda Item	Description	Responsibility	Timeframe
	November SERAG 2 2023 Agenda Item 2: Deepwater Shark (East and West)	The need to resolve the reference period target within the Dynamic Tier 4 which is currently 0.40 (an MSY target) to the MEY target of 0.48 as traditionally used in the Standard Tier 4 and re-do MSE testing.	CSIRO	
	November SERAG 2 2023 Agenda Item 3: Silver Trevally RBC advice	AFMA to add Silver Trevally biological sampling to the Data collection plan for the SESSF.	AFMA	
	November SERAG 2 2023 Agenda Item 5: Rebuilding Species	AFMA to provide the RAG with the Standard Operating Procedures for measuring gear (net) requirements in the SESSF.	AFMA	

	November SERAG 2 2023: Agenda Item 5: Rebuilding Species	AFMA to ensure that spatial distribution of samples collected is representative of the area fished as best as possible. Look into the potential of the ISMP to utilise the NSW DPI samplers in the Sydney Fish Market for sample collection of SESSF species.	AFMA	Completed. Already sampling Sydney Fish Markets
	November SERAG 2 2023	CSIRO to revise the CPUE standardisation including targeting effects, species associations and area effects should be conducted prior to Dynamic Tier 4 assessment in 2024 (subject to review of the revised MSE results SERAG still supports this method).	CSIRO	
	November SERAG 2 2023	A Blue-eye Trevalla Working Group be established to progress the assessment approaches for Blue-eye Trevalla. The working group should convene to review the results of the intersessional work (eg, CPUE standardisation improvements) prior to the SESSF data meeting to ensure the adequate decisions are made in time for future assessments.	AFMA/CSIRO/Members	
	November SERAG 2 2023	CSIRO establish (with AFMA's assistance) a Pink Ling Working Group to advise on the Pink Ling (East) Tier 1 assessment	AFMA/CSIRO/Member	