Australian Government
Australian Fisheries Management Authority

South East Resource Assessment Group (SERAG) Meeting 1, 2024

Meeting minutes

22–23 October 2024

In Person and Virtual

Contents

SERAG Meeting 1, 22–23 October 2024

Agenda

Day 1: Tuesday 22 October 2024

Time (AEDT): 09:00

Location: CSIRO Offices, Hobart

Chair: Dr Paul McShane

Start (Duration)	Item	Purpose	Presenter/s
9:00 (30 min)	**1. Preliminaries**		
	1.1 Welcome* and apologies *Including brief overview of Rikki Taylor's PhD project	For ACTION	Chair
	1.2 Declaration of interests	For ACTION	Chair
	1.3 Adoption of agenda	For ACTION	Chair
	1.4 Minutes from previous meeting	For NOTING	Chair
	1.5 Actions arising from previous meetings	For NOTING	AFMA
9:30 (1.5 hr)	2. Silver Warehou - Tier 1 base case	For ADVICE	Geoff Tuck
11:00 (15 min)	**Morning Tea**		
11:15 (2 hr)	3. Pink Ling (East) - Tier 1 base case	For ADVICE	Pia Bessell-Browne
13:15 (1 hr)	**Lunch**		
14:15 (1 hr)	4. Selection of data inputs and reference periods for Dynamic Tier 4 assessments: a) Blue-eye Trevalla (Slope) b) Deepwater Shark (East) c) Deepwater Shark (West)	For ADVICE	Miriana Sporcic
15:15 (15 min)	**Afternoon Tea**		
15:30 (45 min)	4. Selection of data inputs and reference periods for Dynamic Tier 4 assessments (cont.)	For ADVICE	Miriana Sporcic
16:15 (45 min)	5. Categorisation of Cascade Orange Roughy and TAC advice	For ADVICE	Mark Grubert
17:00	**End of Day 1**		

Day 2: Wednesday 23 October

Time (AEDT): 09:00

Location: CSIRO Offices, Hobart

Start (Duration)	Item	Purpose	Presenter/s
9:00 (1.5 hr)	6. School Whiting - Tier 1 base case	For ADVICE	Paul Burch
10:30 (30 min)	7. Results from SEA-MES voyages 1 and 2	For NOTING	Rich Little
11:00 (15 min)	**Morning Tea**		
11:15 (15 min)	8. Research Catch Allowance for SEA-MES voyage 4	For ADVICE	Mark Grubert
11:30 (30 min)	9. Traditional Tier 4 data inputs: a) Mirror Dory b) Oreo Basket	For ADVICE	Miriana Sporcic
12:00 (30 min)	10. Royal Red Prawn trigger value and assessment options	For ADVICE	Mark Grubert & Ross Bromley
12:30 (1 hr)	**Lunch**		
13:30 (45 min)	11. Close-Kin Mark-Recapture sampling design	For ADVICE	Robin Thomson
14:15 (30 min)	12. Rebuilding species review and TAC advice* *including consideration of Flathead TAC	For ADVICE	Mark Grubert
14:45 (15 min)	**Afternoon Tea**		
15:00 (30 min)	12. Rebuilding species review and TAC advice (cont.)	For ADVICE	Mark Grubert
15:30 (30 min)	13. Rebuilding Species Strategy document	For ADVICE	Mark Grubert
16:00 (30 min)	14. Species composition of data-poor deepwater sharks	For NOTING	Sushmita Mukherji
16:30 (15 min)	15. Other Business - Recommendations & action items review	For ADVICE	Membership
16:45	**Meeting close**		

1 Preliminaries

1.1 Welcome and Apologies

Paul McShane (Chair) welcomed attendees to the meeting and made an Acknowledgement of Country.

The Chair also advised that James Woodhams has stepped down as a scientific member and that Jeremy Lyle has taken on this role (see **Table 1**).

Rikki Taylor gave a brief overview to her PhD project "Identifying and assessing emerging fish stocks in a rapidly warming ecosystem" which will focus on a number of species relevant to SERAG.

Table 1. SERAG membership 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 Jeremy Lyle	Scientific Member
Dr Mark Grubert	AFMA Member
Mr Nathan Jackson	Executive Officer
Invited Participants	**Organisation**
Dr Pia Bessell-Browne	CSIRO
Dr Paul Burch	CSIRO
Dr Miriana Sporcic	CSIRO
Dr Robin Thompson	CSIRO
Dr Rich Little	CSIRO
Ms Franzis Althaus	CSIRO
Ms Sushmita Mukherji	CSIRO/UTAS
Mr Ryan Keightley	DCCEEW
Ms Bronwen Jones	DCCEEW
Mr Peter Yates	DCCEEW
Mr Ross Bromley	Atlantis Fisheries Consulting Group
AFMA Employees	
Ms Sally Weekes	Senior Manager – Demersal and Midwater
Ms Michelle Henriksen	Senior Management Officer – GHaT

Ms Rebecca Jol	Senior Management Officer – Trawl
Ms Jennifer Power-Geary	Senior Management Officer – Trawl
Ms Audrey Kent	Senior Management Support Officer – Trawl
Dr Lianos Triantafillos	Manager – GHaT
Mr Anthony Coggan	Senior Management Support Officer – GHaT
Observers	**Organisation**
Dr Tim Emery	ABARES
Dr Krystle Keller	ABARES
Dr Daniel Wright	ABARES
Mr Andy Warmbrunn	TAS NRE
Ms Rikki Taylor	CSIRO/UTAS
Dr Geoff Liggins	NSW DPI
Dr Ashley Fowler	NSW DPI
Dr Karina Hall	NSW DPI

1.2 Declaration of interests

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

Table 2. Participation in agenda items where members declared a conflict of interest

Agenda Item	Members	Discussion	Recommendation/s
5. Categorisation of Cascade Orange Roughy and TAC advice	Daniel Hogan, Simon Boag	Yes	No
10. Royal Red Prawn trigger value and assessment options	Simon Boag, Ross Bromley (invited participant)	Yes	No
12. Rebuilding species review and TAC advice	Daniel Hogan, Simon Boag and Will Mure	Yes	No

1.3 Adoption of Agenda

The RAG adopted the agenda as final.

1.4 Minutes of Previous Meeting

The RAG noted that the minutes from the two meetings held in 2023 are available on the AFMA Website.

1.5 Actions arising from previous meetings

The RAG noted the status of action items arising from previous meetings (see Attachment B) with no further discussion.

2. Silver Warehou – Tier 1 base case

Geoff Tuck led the discussion on this agenda item and sought advice on model structure and sensitivities for inclusion in the final assessment to be presented at the November SERAG meeting.
The key points are summarised below.

- The preliminary base case has been updated with the inclusion of data up to the end of 2023 which entails the additional three years of catch, discard, CPUE, length and age data and ageing error updates since the 2021 assessment.
- The results from the preliminary base case assessment show similar fits to those observed in the previous assessment. The fit to the conditional age-at-length data and the standardised catch rates in the east trawl fleet are good. However, the fit to the west trawl fleet standardised catch rates shows a recent increase in predicted CPUE compared to a decrease in the observed CPUE. Fits to both fleets' discard data are reasonable.
- Fits to length data remain poor, as has been observed in previous assessments, with annual length frequency inputs highly variable, often showing multiple modes in the distributions that are not consistent from one year to the next.
- The preliminary base case assessment estimates the projected 2025 spawning stock biomass will be 46% of virgin stock biomass (projected assuming 2023 catches in 2024), compared to 29% at the start of 2022 from the last assessment. The increase in estimated stock status since the 2021 assessment is likely due to increases in recent estimated recruitment, combined with low catches. Of particular note, the 2018 estimated recruitment deviation is above average. This also influences the 5-year average recruitment used for projections. Some caution may be warranted, as it has previously been observed for Silver Warehou that more recent estimated recruitment values are subsequently reduced in future assessments when more data are available.
- The rate of natural mortality (*M*) for Silver Warehou is assumed to be constant with age, and also time-invariant. The value is pre-specified at 0.30 (same as the 2021 assessment). The likelihood profile of *M* shows that the data support a higher value, particularly the length data. However, preference for values over 0.425 is at odds with the life history of the species. Silver Warehou are known to reach up to 23 years of age, but a value of *M* over 0.425 suggests a much shorter life span.
- When *M* is estimated using the life-history based empirical estimators of Hoenig (1983) and Then et al. (2015) based on a maximum age of 23 years, values of *M* range from 0.19–0.28. However, consideration of Silver Warehou age data suggests this maximum age may be an over-estimate. If instead a maximum age of 15 is used in the empirical estimators, values of *M* range from 0.29-0.41. The 2024 New Zealand Fisheries Assessment Plenary Report for Silver Warehou reports suitable values of natural mortality between 0.2-0.3.
- The current model structure assumes a single biological stock across eastern and western zones, with fleets defined by zone and data separated by zone. Models were considered where data were separated by zone into separate eastern and western stock models. Initial biomass is much larger for the western stock model, but more uncertain than the eastern stock model. Recruitment patterns are similar but do not always match. Both eastern and western stock models estimate above average recruitment in 2018.

The RAG discussed the following points:

- Length frequencies are inconsistent through the time series. This species has experienced reductions in observer sampling effort. There is concern that sampling is not representative of the actual size distribution from the two regions from one year to the next.
- An Industry Member noted that they do observe large Silver Warehou while fishing. They suggested that size is related to depth for this species. The RAG noted previous work conducted by CSIRO

"Investigation of the influence of month, depth, and zone on the body lengths of quota species in the SESSF" also indicates the relationship between depth and length. The RAG agreed that depth is important for this species and recommended weighting the length frequencies by depth.
- Industry members also noted that market value for the species is lower than catch cost and as a result there is currently no targeted fishing for this species.
- There is a very high discard estimate for Silver Warehou, this may be creating tension in the model and requires more exploration. The high discard estimate combined with low catches brings into question the ability for CPUE to reliably index abundance.
- There is an apparent trend where numerous Tier 1 stock assessments across the SESSF are unable to estimate as many recruitment deviations as earlier assessments due to declines in observer data.
- Given concerns with the available data (such as length frequencies driving the high value of *M*), there should not be too much emphasis placed on the likelihood profile of *M*. Choosing the pre-specified value of *M* is a challenge for many SESSF (and global) stocks, it is difficult to estimate even within data-rich assessments. Noting the discussion the RAG should also consider other information to guide the decision on a pre-specified value of *M*.
- The RAG recommended that the length frequency data be weighted by depth. Following this revision to the length data processing, the updated base case should be presented to the Pink Ling/Blue-eye Trevalla working group prior to SERAG 2. Following this, the standard suite of sensitivities should be run including different values of *M* (including 0.4).

The RAG noted the Commission's concern regarding the value of *M* used in the previous assessment. Sensitivities of *M* (including 0.4) will be conducted on the updated base case to be presented at the November meeting. The RAG also recommended continuing with a single stock model as the base case.

3. Pink Ling (East) – Tier 1 preliminary base case

Pia Bessell-Browne led the discussion on this agenda item and sought advice on data inputs and sensitivities for inclusion in the final assessment to be presented at the November SERAG meeting.
The RAG noted the following key information;

- There have been substantial updates to the structure of the assessment since the 2021 assessment, primarily due to a change in assessment authors and software platform. The 2021 assessment used a subset of available composition data, age-based selectivity, discards added to catch as proportions, and did not apply the agreed SESSF harvest control rule specified by the harvest strategy. The updated base case (2024 assessment) uses all available composition data, a wider range of length bins, length-based selectivity, and fits to discard proportions and length frequencies for the Trawl fleet while estimating a retention function. Time blocks in selectivity and retention are included to account for trawl net changes and the implementation of trip limits that were introduced to minimise fishing mortality.
- CSIRO followed a bridging process to transition the assessment from CASAL to Stock Synthesis. Due to differences in parametrisation and model specifications the first model fitted in Stock Synthesis pre-specified all parameters, apart from R_0 and recruitment deviations, to the same values estimated by CASAL to test differences due to the software platform. Following this, parameters were sequentially estimated to determine the impact of their change. From here, structural changes to the assessment setup were introduced and were accepted by the Pink Ling/Blue-eye Trevalla Working Group. These included:

    i. Reducing the "width" of individual length bins from 5 cm to 2 cm and broadening the range of fish lengths used from 20–115 cm to 20–150 cm;

ii. Including length composition data from onboard and port samples that were previously excluded;
iii. Using all age data as conditional age-at-length rather than a mix of conditional age-at-length and age composition data;
iv. Transitioning from age-based to length-based selectivity;
v. Inclusion of data on discard proportions and discarded length frequencies for the Trawl fleet, including estimating a retention function for this fleet;
vi. Time block retention of the Trawl fleet to account for changes in discarding practices in years when trip limits were implemented; and
vii. Re-tuning using the most recent tuning protocols (Pacific Fishery Management Council, 2018).

- The preliminary base case with updated structure as described above has been updated with the inclusion of data to the end of 2023, which entails an additional three years of catch, discard, catch per unit effort (CPUE), length and age data and ageing error updates since the 2021 assessment.
- Extending estimation of recruitment deviations to 2021 resulted in an extremely low estimate in 2021. Investigating variance revealed little information to inform the 2021 estimate. For the preliminary base case recruitment deviations have only been estimated until 2020, following which they are taken from the stock-recruitment curve.
- Results of the preliminary base case show reasonably good fits to the catch rate, discard, length and conditional age-at-length data. The assessment estimates that the projected 2024 spawning stock biomass will be 43% of unfished spawning stock biomass (projected assuming 2023 catches in 2024), compared to 34% at the start of 2022 from the 2021 assessment and 30% at the start of 2019 from the 2018 assessment. This increase in estimated stock status is due to the stock rebuilding towards the target reference point and changes in assessment structure and data inputs.
- The pre-specified value of *M* used in the preliminary base case was taken from the 2021 assessment. In 2021, the western Pink Ling stock estimated M while the eastern assessment could not. Therefore, the western value was used in the eastern assessment. No assessment of western Pink Ling is being conducted in 2024, therefore, there is no updated estimate on which to base the pre-specified value of *M* for eastern Pink Ling in 2024.
- A likelihood profile for *M* from the preliminary base case was undertaken and suggests that a lower value of *M* is more appropriate given the data inputs in the assessment, particularly the age data. The assessment preference for values from 0.12–0.14 is at odds with the life history of the species, given a maximum age 28 years from otolith age estimates for this stock. It has also been determined that estimates of *M* from assessments can be influenced by data-weighting assumptions, which may be influencing the preference for such low estimates of *M*, and notably the age and length data are in conflict.
- Estimates of *M* can be borrowed from Pink Ling assessments of stocks in other regions. Pink Ling is caught throughout New Zealand where it is assessed as six separate stocks. An analysis comparing life history derived empirical estimators of *M* for Pink Ling across stocks suggested estimates ranging from 0.12–0.16 were appropriate. The 2023 stock assessment of Pink Ling off the west coast of the South Island (LIN 7WC) pre-specified *M* at 0.18. When *M* is estimated using the life-history based empirical estimators of Hoenig (1983) and Then et al. (2015) using the maximum age of 28 years, values of *M* range from 0.15–0.23.

The RAG discussed the following key points:

- The variance in recruitment deviations is reduced when data collection is increased, the increased estimate at the end of 2021 is a warning sign that there is insufficient information in the assessment. This is a common issue across a number of SESSF Tier 1 assessments.

- An industry member noted that it would be highly unlikely for Pink Ling to be discarded at high rates, supporting the working groups recommendation to remove outliers of 100% non-trawl Pink Ling discard records from the assessment.
- A scientific member noted that there are some differences in the CPUE time series between the previous and new assessments that will affect the model outputs. The RAG noted that CSIRO did not have access to the CPUE time series from the previous assessment and that the two time series showed broadly similar trends.
- SERAG recommended that CSIRO develop a formal process to estimate natural mortality for Tier 1 stock assessments prior to the SESSFRAG Data Meeting 2025. The RAG also suggested that CSIRO develop an informative prior of *M* for Pink Ling (east) before the next assessment of this stock.
- A cross-catch risk analysis has been used to demonstrate the impact of different values of *M* on Orange Roughy assessment outputs in the past. The RAG recommended that a cross-catch risk analysis also be undertaken for Pink Ling (east) - using an alternative value of *M* = 0.18 – for consideration at the November meeting.

Action Item: CSIRO to develop a formal process to estimate natural mortality for Tier 1 stocks prior to the 2025 SESSFRAG Data Meeting.

4. Selection of data inputs and reference periods for Dynamic Tier 4 assessments

Miriana Sporcic led the discussion on this agenda item and sought advice on data inputs and reference periods for the Dynamic Tier 4 assessments of Blue-eye Trevalla (slope), Deepwater Shark (east) and Deepwater Shark (west) to be presented at the November SERAG meeting. The RAG noted the following key information:

Blue-eye Trevalla (slope)

- The catch series used in the 2023 Traditional Tier 4 assessment spanned 1997–2022. Robin Thomson has compiled an updated catch series (1969–2023) for potential use in the Dynamic Tier 4 assessment. There is insufficient auto longline data to extend the CPUE series any earlier than 1997.
- There is a choice between using a combined CPUE (1997–2023) or a new line CPUE (2002–2023) for consideration in this assessment. The Dynamic Tier 4 assessment allows for multiple CPUE series spanning different time periods.
- In an attempt to exclude targeted fishing of Pink Ling from the analysis, a CPUE series that excluded operations that caught less than 10% of Blue-Eye Trevalla was also examined. An Industry Member agreed that 10% was a good amount to determine exclusion and suggested that 20% exclusion limit also be explored.
- The RAG noted that there was not a great deal of visual difference between the “status quo” CPUE and the CPUE that excludes operations that caught <10% Blue-eye Trevalla. Miriana Sporcic suggested the CPUE series standardised assuming a negative binomial distribution has the best fitting diagnostics and this CPUE series is not overly different to the “status quo” CPUE series in trend. Miriana Sporcic agreed to explore a 20% Blue-Eye Trevalla exclusion limit on this CPUE series while noting the more data that is excluded the more data is lost from the CPUE calculation, giving rise to greater uncertainty.
- Pia Bessell-Browne noted that the Traditional Tier 4 reference period assumes that CPUE is at the target level, and also assumes the catches during that period are the equilibrium catches when the stock is at target. The reference periods for several SESSF species show high catches at the start of a fish down period. When this occurs, the Traditional Tier 4 produces a pronounced cycling effect. The

Dynamic Tier 4 assessment method does not rely on this assumption, as it estimates what the target catches should be, independent of the catch during the reference period.

- The Dynamic Tier 4 assessment can estimate different catchabilities from the different CPUE series.
- Geoff Tuck noted a Tier 1 assessment should be pursued for the Blue-eye Trevalla slope stock.
- The RAG noted the requirements of the HSP to select a reference period that represents a target of B_{48} or B_{40} (species dependent), the RAG also noted the reference period should represent a period of stability in the fishery, and it is not always possible to identify a time that reflects the HSP target. The reference period needs to be chosen when CPUE estimates are available.
- The RAG considered that there was insufficient data to deviate from the current established reference period of 1997–2006.

Deepwater Shark (west)

- CSIRO identified that the zonation scheme previously used for the deepwater sharks baskets did not reflect the boundaries of their management zones, in particular, the extension of the eastern management zone clockwise around southern Tasmania to 42 degrees latitude.
- The Deepwater Shark catch time series developed by Nick Hill and Robin Thomson in 2022–2023 needs to be revised in order to correct this error. This will change the estimated catches prior to 1996 (shifting some catch currently marked as 'west' to 'east' but not the overall catch). Catches after that date will likely change very little and catches after 2002 not at all.
- A catch reconstruction series was produced for catches prior to 1996. The choices made in this catch reconstruction were as followed:
    i. Use CDR totals from 2006, with discard estimates (Althaus and Sutton, 2024) by region: 54% (east), and 24% and 38% (west)
    ii. Use logbook total landing for 1996–2005 but apply average CDR to logbook ratio.
    iii. Apply discards estimates (Althaus and Sutton, 2024) to 1996–2005 values above.
    iv. Set landings prior to 1985 to zero.
    v. For 1985–1995 apply a CPUE ratio to logbook reported shots.
    vi. Calculate the CPUE ratio from standardised CPUE for 1995–2001.
- A scientific member noted that in the late 80s and early 90s the discard rate would likely be 100%, and when target fishing Orange Roughy the bycatch is very limited. This method risks over estimating catch if you are applying it to Orange Roughy fishing operations. Robin Thomson noted that an investigation into different sectors of the fishery would take longer and require additional financial and staff resources.
- The reference period for Deepwater Shark (west) previously assumed that the stock was unfished. As a substantial catch history prior to this time is now included in the assessment, a new reference period for this shark basket needed to be chosen (was 1995–2004). The RAG noted the need to define an area of stability that represents a target of B_{48}.

Deepwater Shark (east)

The catch history reconstruction method and updated zoning classification applied to the Deepwater Shark west stock will also be applied to the Deepwater Shark east stock.
The RAG noted that large spatial closures afford protection to deepwater sharks across the areas of the Commonwealth Trawl Sector.

Action Item: Miriana Sporcic to compile a Blue-eye Trevalla CPUE time series excluding shots with <20% of this species for evaluation by the Pink Ling/Blue-eye Trevalla working group prior to SERAG 2, 2024.

5. Categorisation of Cascade Plateau Orange Roughy and TAC advice

Mark Grubert led the discussion on the proposal to categorise Cascade Plateau Orange Roughy as a trigger species and sought advice on an appropriate TAC and catch trigger for this stock.
The RAG noted the following points:

- Under the revised SESSF Harvest Strategy Framework, stocks may be categorised as "trigger species" if they meet the following criteria:
  i. Stock status is estimated to be above the target reference point, or $F<F_{MSY}$; and
  ii. The TAC is less than 75% caught; and
  iii. It is flagged as a non-indicator species under the Multi-Species Harvest Strategy (MSHS) approach.
- Cascade Plateau Orange Roughy meets the first criteria as the biomass estimate from the 2009 assessment was 64%, well above the 48% biomass target. It also meets the second criteria as the annual catch as a percentage of the TAC has not exceeded 75% in the last decade (having only exceeded 40% on two occasions).
- Orange Roughy is flagged as an indicator species under the MSHS approach. However, AFMA proposes that the Cascade Plateau Orange Roughy be exempt from the third criteria above (and categorised as a trigger species from 1 May 2025), on the basis that the comparatively small and sporadic catches of this stock over recent seasons would not make it a particularly effective indicator of the biomass status of companion species (such as Oreos).
- AFMA is intending to implement a SESSF Trawl boat concession condition that would require operators to carry an observer on their first trip to the Cascade Plateau each season to improve data collection from this area.
- The last formal (Tier 1) stock assessment update for Cascade Plateau Orange Roughy was undertaken in 2009, using revised data to 2009. Based on this assessment, the biomass of Cascade Plateau Orange Roughy was estimated at 64 per cent of the unfished biomass and an RBC set at 492 t following the 20:35:48 harvest control rule.
- An Industry member noted that one operator reported large aggregations of Orange Roughy when fishing the Cascade Plateau in 2021.

The RAG recommended that the 397 t TAC for Cascade Plateau Orange Roughy be maintained under the trigger species approach for the 2025–26 season until such time as another assessment on this stock is completed. The RAG also recommended that a catch trigger of 295 t be applied to this stock.

6. School Whiting – Tier 1 base case

Karina Hall gave a presentation on recent research on the stock structure of Eastern School Whiting. The RAG noted the following points:

- All analyses provided evidence for some variation among locations at distribution extremities (Tasmania, South Australia and Western Victoria; and northern New South Wales).
- There is considerable overlap across south-east Australian waters where the bulk of commercial catch is taken.
- A null result suggested that there is likely a single biological stock of Eastern School Whiting for stock assessment and management purposes.
- One scientific member highlighted that the stock has experienced localised depletion, so despite single biological stock identification, the application of separate stocks for management purposes may be more appropriate.

Paul Burch led the discussion on the Eastern School Whiting Tier 1 preliminary base case and sought advice on model inputs and sensitivities to be presented at the November meeting.
The RAG noted the following points from assessment:

- Five fleets currently target Eastern School Whiting in eastern Australia. The southern trawl fleet (previously named Commonwealth trawl) includes state trawlers in zone 20 and Commonwealth trawlers in zones 12, 20, 91 (1947–2023). It is proposed that these be split into southern NSW trawl and Commonwealth trawl fleets.
- There is a potential error in an input of Commonwealth trawlers in zone 91. Scientific and industry members agreed that these catches are likely to be state catches and not Commonwealth and inputted incorrectly in the 90s. Details of Commonwealth catches in zone 91 require investigation.
- Bridge 1 of Tier 1 base case included:
    i. Updating the 2020 assessment using Stock Synthesis V3.30.16.
    ii. 2020 assessment converted to Stock Synthesis V3.30.22.1.
    iii. Update catch 2006–2020.
    iv. Re-tune using the most recent tuning protocols.
    v. Resulting in a recruitment deviation change when tuning protocols where applied, and a minimal impact on the absolute recruitment of the stock.
- Bridge 2 of Tier 1 base case included:
    i. Added catch, CPUE, discard fraction estimates, length frequency and age-at-length data to 2023.
    ii. Estimate of recruitment deviations to 2020.
    iii. Re-tuned using the most recent tuning protocols.
    iv. The first three steps of tuning produced minimal change to the absolute and relative biomass series. Adding length data resulted in increasing the biomass series, adding age and extending recruitment brings the biomass series down. When the tuning protocols are applied the estimated absolute spawning biomass declined to below the level of the 2020 assessment.
    v. NSW northern CPUE has a gap in data in 2009 due to a switch from monthly to daily catch reporting.
    vi. The RAG recommended that recruitment deviations in the 2024 assessment be extended to 2020, four more than the 2020 assessment.
    vii. The time series of estimates of absolute spawning biomass from the 2024 assessment are lower than the 2020 assessment, presumably due to the new assessment fitting the Victorian Danish seine CPUE preferentially over the southern (Commonwealth) trawl CPUE.
    viii. There were difficulties in applying the tuning protocols and it was necessary to fix the variance of the NSW Danish seine age-at-length observations to 1. As this fleet only has two years of age-at-length samples it is expected to have minimal impact on the outcomes of the assessment. This will be investigated further with a sensitivity excluding this data for SERAG 2 2024.
    ix. Victorian Danish seine discard estimate fits are generally good, however 2019, 2020 and 2023 estimates are unable to fit the values of 0.13–0.22.
    x. The model has difficulty fitting to the recent high discard estimates for the southern (Commonwealth) trawl fleet.
    xi. NSW fleet discard estimates fit well, noting NSW fleets have a few intermittent discard estimates.
- The preliminary base case assessment estimates unfished spawning stock biomass (SSB_0) at 8,679 t (compared to 10,780 t from the 2020 assessment). The assessment projects that at the beginning of 2025 spawning biomass (SSB_{2025}) will be 3,657 t and stock status (SSB_{2025}/ SSB_0) will be 42%, assuming catches in 2024 are the same as those in 2023. The 2020 assessment estimated SSB_{2021} at 4,407 t and SSB_{2021}/ SSB_0 at 41%.

The preliminary base case has identified a number of aspects of the assessment that could benefit from additional model development. CSIRO seek advice on the priority of the following modifications to the preliminary base case assessment for 2024, including:

- The southern trawl fleet estimates the discarded catch from Commonwealth trawl data, however, NSW vessels are estimated to have much lower discard rates (as they are not under quota), while they take the majority of recent catches of this fleet. It is recommended that this fleet be separated into Commonwealth trawl and NSW southern fish trawl fleets.
- Victorian Danish seine and southern trawl catch CPUE conflict in the 2024 assessment (as they did in the 2020 assessment). The SERAG sub-group that was established to provide inter-sessional advice on assessments recommended SERAG consider whether there were sufficient data available to undertake separate Victorian and NSW assessments.
- The assessment currently assumes Eastern School Whiting have a maximum length of 25 cm. However, the data suggest that this could be increased to 30 cm. While this is unlikely to have a major impact on the assessment outcomes, it is recommended that this adjustment be made.
- The observed discard fraction for the Victorian Danish seine and southern (Commonwealth) trawl fleets has increased to 0.2–0.3 for some years between 2019–2023, potentially suggesting the need for time blocking of the discard rates.
- The assessment is a single sex model, assuming a single growth curve for both sexes, however, there is evidence to suggest sex-specific growth rates. While the differences in growth rates are small and are unlikely to have a major impact on the assessment outcomes, it is recommended that the assessment be extended to a two sex model.

The RAG discussed the following points:

- Industry members noted that increasing cost to process fish is leading to an increase in discarding of small School Whiting by Commonwealth trawl boats. This problem is less acute in the NSW fleet as some NSW operators are sending fish overseas for processing.
- Higher discard rates are likely occurring in operations where Eastern School Whiting are not being targeted as specific nets are used when fishing for school whiting.
- A Scientific member recommended re-naming ‘other’ section of NSW and Victorian catch in plots to ‘combined fleets’ for clarity.
- There may be reason to suspect that the CPUE series is no longer indexing abundance, there is potential to shorten the CPUE series where the new fishing practices started to occur.
- The RAG recommended time blocking discards for the Commonwealth fleets (but not the NSW fleets) and saw no reason to change the value of *M* in base case.
- The RAG recommended exploring catches from zone 91 to differentiate Commonwealth and State catches.
- A Scientific member noted the value in splitting NSW and Victorian assessments to reflect historical differences in fishing pressure and the presence of a natural break around Eden NSW. Presence of different fishing practices today reflect another valuable reason for a split.
- The RAG recommended separating the Victorian and NSW assessments and using this as the base case.

The RAG concluded the agenda item by acknowledging the assistance of Jemery Day on this and several other SESSF assessments over many years.

7. Results from SEA-MES voyages 1 and 2

Rich Little led the discussion on the results from SEA-MES voyages 1 and 2.

- Observations from SESSF over the past 20 years have indicated changes in the abundance and composition of the main finfish species. Concurrent with these declines, has been high levels of catches and catch rates for other species such as ocean jackets and latchets. Additionally, stocks that were historically over-fished have not rebuilt as expected, despite active fisheries management and a reduction in fishing effort.
- The SEA-MES voyage sought answers to three questions:
    i. How much have habitats, fish assemblages and species abundances changed in the southeast ecosystem in 25 years?
    ii. How do any changes affect the multiple-use management of the region, particularly conservation and biodiversity management of Australian Marine parks and the hive of activity from fisheries, oil and gas, and renewable energy sectors.
    iii. What are the implications for marine spatial planning and adaptive management in sectors that use the marine ecosystem and the managers that regulate it?
- The two completed surveys (SEAM-MES 1 & 2) targeted a series of sampling stations between 70 m and 500 m depth. SEA-MES 2 (May 2024) sampled stations that complemented the ones sampled on SEA_MES 1 in July 2023. At each site, one or more gear types were deployed to obtain samples of water and animals, and the Deep Towed Camera System was used to record imagery of the seafloor habitat and of animals in situ.
- Demersal trawl sampling using a McKenna semi V-wing fish trawl net was conducted at 80 sampling stations. 193 species of teleost or elasmobranchs were sampled from a total catch of 30.45 t on the previous voyage SEA-MES 1.
- Preliminary results of the SEA-MES 1 and 2 are available on the CSIRO website: https://research.csiro.au/sea-mes/

The RAG discussed the following key points regarding the SEA-MES voyages:

- The large Mirror Dory catch of this year's SEA-MES voyage aligned with the RAG and MAC advice in 2023 to double the Mirror Dory TAC. Note the large difference of the SEA-MES catches compared to the caches from the 1993-96 SEFES study reflect the deeper sampling of the SEA-MES study, rather than an increase in abundance of the species.
- The increase in the abundance of Stingarees across the Southeast and the potential mechanisms behind this increase.

8. Research Catch Allowance for SEA-MES voyage 4

Mark Grubert led the discussion on a Research Catch Allowance (RCA) for the fourth voyage of the South East Australian Marine Ecosystem Survey (SEA-MES) in May/June 2025.
The RAG noted the following key points:

- In 2023, Rich Little submitted a request for an RCA to the AFMA commission to support sampling activities by the RV Investigator during the first SEA-MES voyage in June 2023.
- AFMA approved a 10 tonne RCA for mixed Commonwealth quota species for the first SEA-MES voyage.
- RCAs for two subsequent voyages were requested and approved by SERAG (September 2023) and the AFMA Commission (March 2024).
- The scientific permit issued by AFMA for SEA-MES voyages included move-on provisions for Eastern Jackass Morwong and School Shark, with triggers 150 kg and 100 kg, respectively.

The RAG recommended an RCA of 10 tonnes of mixed quota species (under the same permit conditions as previously applied) for the fourth and final SEA-MES voyage in 2025.

9. Traditional Tier 4 data inputs and reference periods

Miriana Sporcic led the discussion and opened item 9 and sought RAG advice s on the Tier 4 assessment PDiscard inputs for 1) the eastern and western stocks of Mirror Dory and 2) Oreo Basket and provide input on the assessments to be presented at SERAG 2 (November 2024).

Mirror Dory
The RAG recommended that CSIRO use the most recent discard estimate for the Traditional Tier 4 assessment for Mirror Dory east. The RAG also noted that there are no discard estimates and very little state catch for Mirror Dory west.

Oreo Basket
The RAG noted the following key points on the Tier 4 assessment for Oreo Basket:

- Since the previous 2020 assessment, the estimated discards (pDiscard) for 2016, 2018 and 2019 have been revised. The RAG was asked to advise on the pDiscard to use to back fill years with missing discard estimates

The RAG noted:
- the revised average pDiscard (0.2565), which incorporates the revised pDiscard in 2016, 2018, 2019 and
- the average pDiscard (0.2609) used in the previous assessment. Catch Disposal Records have been revised since last assessment.

The RAG recommended using the revised average pDiscard (0.2565) that incorporates the revised discard estimates for 2016, 2018, 2019 to backfill years of missing values. With respect to the catch history series, the RAG recommended further exploration of the added catch and noted this will be presented to the Working Group prior to SERAG 2 2024.

10. Royal Red Prawn trigger value and assessment options

Mark Grubert and Ross Bromley led the discussion on a revised catch trigger for Royal Red Prawn and assessment options for this species that better account for uncertainty.
The RAG noted the following background information:

- Royal Red Prawn is one of 10 quota-managed species that is now categorised as a "trigger species" under the revised SESSF HSF;
- The current 50 t catch trigger for this species equates to 8% of the 628 t TAC for Royal Red Prawn, far below the 75% TAC catch trigger applied to other trigger species. The low trigger was intentional given fishing effort in recent years was minimal; however, with the primary operator receiving Marine Stewardship Council (MSC) accreditation in June 2023, the trigger has already been exceeded this season and fishing effort is expected to increase.
- The Client Action Plan associated with the MSC certificate contains several conditions, one of which is to "*Ensure the assessment takes uncertainty into account and review the reference points against which this is assessed to ensure that they are appropriate for the stock".*
- Royal Red Prawn has been selected as an example species for evaluation through AFMA's draft Climate Risk Framework.

The RAG discussed the following key points:

- There are known issues with some of the data used in the CPUE standardisation which has historically been used for Tier 4 assessments. Capture depths for several vessels have likely been reported in fathoms (instead of metres) which in turn has potentially compromised the time series of standardised CPUE.
- The RAG recommended that capture depth records for Royal Red Prawn be corrected before any new assessment is attempted.
- CSIRO participants reminded the RAG that CSIRO will not be conducting CPUE analysis in 2025 and that the MSC is unlikely to accept a Tier 4 assessment for Royal Red Prawn in future. Furthermore, the SESSF assessment team at CSIRO is accustomed to conducting assessments on sharks and fishes but less familiar with prawn assessments. Any new assessment on a prawn species is expected to be a large body of work.
- Several participants noted the short life span of Royal Red Prawn (maximum of 4 years) and suggested that it may be more appropriate to recategorise this species as a MYTAC species with a short (e.g. two-year) MYTAC period (noting that this could not occur until a new assessment is completed).
- The RAG considered examples of assessments from the Northern Prawn and South Australian Prawn fisheries along with length-based assessments that can used for stocks without valid CPUE. A scientific member highlighted that a variety of prawn assessment types could meet MSC requirements. In the case of Royal Red Prawn, with a single majority operator, a risk-based approach may be sufficient.

SERAG recommended running Royal Red Prawn through the FishPath tool to identify potential assessment options and data collection methodologies.
The RAG also recommended maintaining the long-term TAC of 628 t for Royal Red Prawn along with the current catch trigger of 50 t.

Action Item: AFMA to correct erroneous depth records for Royal Red Prawn shots prior to any new assessment.

11. Close-Kin Mark-Recapture (CKMR) sampling design

Robin Thomson led the discussion on Close-Kin Mark-Recapture design study for selected SESSF species. The RAG noted the following key points:

- Eastern Trawl has a reduced effort and an increase in closed areas, ultimately affecting CPUE and compromising Tier 1 and Tier 4 assessments.
- Climate change is altering recruitment and B_0 as the ecosystem changes and Tier 1 models are better at determining relative abundance.
- CKMR Recapture involves a time series of absolute abundance and provides an estimate of total mortality (given catches: *M* and *F*). It is fishery independent and provides information back in time (not most recent information).
- Need not be a Tier 1 species in order to be chosen for CKMR design, a 'target' design could be done using biological parameters, catches and a target stock status
- Some species will not be good candidates for CKMR (School Whiting and Small pelagics).
- Very depleted species could have feasible sample sizes now, but requirements would alter as the stock increases.

The RAG discussed the following key points:

- Number of samples required is high to begin with but reduces over time.

- CKMR used for assessments in School Sharks and several Threatened, Endangered and Protected species around Australia. Internationally, the first application for a CKMR for Southern Bluefin Tuna has been successful.
- There is a need for strict sampling protocols for industry sampling programs.
- There is a current FRDC project (PI Pia Bessell-Browne) that is developing a harvest control rule applicable to close-kin results using control rules that negates the requirement to know B_0.
- Blue-eye Trevalla sampling to be included as part of the SiDAC contract.

The RAG supported the five-year design timeframe. The RAG noted some stocks lack a recent assessment model to provide an appropriate target stock status. The RAG supported using a target of 20% unfished spawning biomass for Eastern Gemfish and Blue Warehou.

12. Rebuilding species review and TAC advice

Mark Grubert led the review of available information for depleted species/stocks and sought advice on bycatch Total Allowable Catch (TAC) for each depleted species/stock during the 2025–26 SESSF season. The depleted species/stocks included: Eastern Jackass Morwong; John Dory, Blue Warehou; Redfish; Eastern Gemfish; Western Zone Orange Roughy; Southern Zone Orange Roughy outside of the Pedra Branca Orange Roughy Management Area; and Orange Roughy within the East Coast Deepwater Trawl Sector (ECDTS).
The RAG noted the following key points:

- That a metier analysis has not been undertaken to inform bycatch TACs due to a number of significant management changes in the Commonwealth Trawl Sector (CTS) since 1 May 2023, likely changing the metiers.
- The amendments to two of the rebuilding species closures (Flounder/Kingfisher Trawl Closure and Babel Island Trawl Closure) that came into effect on 16th May 2024.
- The comparison of the Catch per Unit Effort for south-eastern fishes, sharks and rays (including SESSF quota species) from historical and recent fish surveys provided by SEA-MES voyage findings.

At its March 2024 meeting, the AFMA Commission requested that SERAG consider the need to continue to constrain catches of Tiger Flathead (in order to reduce the mortality of Eastern Jackass Morwong) given the recent structural adjustment process, implementation of additional trawl closures and changes to Danish seine mesh size.
The RAG discussed the following:

- CSIRO calculates discard rates for Silver Warehou, but not Eastern Jackass Morwong. CSIRO to investigate Jackass Morwong logbook discard numbers.
- Closures were based on limiting total mortality of Eastern Jackass Morwong to 100 t using modelled discard estimates.
- Concern over the accuracy of discard data, with reliance on low observer coverage (3%) and inconsistent discard estimation methods, such as the Bergh method (annual) and model-based estimates (over a number of years).
- The need to consider implementing time blocks for discarding in stock assessments models to address variability in discard rates over time.
- The use of bycatch species as indicators for management may have major effects on primary target species, especially if those species are climate-affected.

The RAG noted concerns around estimated discard rates of Eastern Jackass Morwong (and associated uncertainty of total mortality) and recommended the Flathead MYTAC stays constrained at its current level.

The RAG noted there is insufficient information to change the existing bycatch TACs therefore recommended maintaining them at existing levels.
The RAG noted the importance of the Tiger Flathead fishery and recommended priority be placed on working towards a more accurate estimation of total mortality (in particular discards) for companion species in the SESSF, whether through observer coverage or implementation of electronic monitoring.

Action Item: Paul Burch to investigate Eastern Jackass Morwong logbook discards and work with AFMA and ABARES to update the discard estimate for this species by mid-2025

13. Rebuilding Species Strategy

Mark Grubert led the discussion on the Rebuilding Species Strategy Document for Eastern Jackass Morwong, John Dory and an updated management plan for Redfish.
CSIRO has estimated the mean generation time for eastern Jackass Morwong and John Dory at 12.1 years and 8.7 years, respectively.
AFMA is seeking advice from the RAG on setting the rebuilding time frame for Eastern Jackass Morwong and John Dory at 22 years and 19 years, respectively, based on mean generation time plus 10 years.
The RAG discussed the following:

- The possibility of an industry sampling program in order to overcome the challenge of collecting samples of rebuilding species.
- Concerns that a rebuilding timeframe for a species may be irrelevant if biomass is suppressed through non-fishing factors (such as climate change). That setting a rebuilding timeframe, as outlined in the legislation, does not account for environmental changes.
- ABARES reminded the RAG that the Environment Protection and Biodiversity Conservation (EBPC) Act, still requires that a rebuilding timeframe be set (as T_{min} or a proxy thereof)

The RAG advised using the AFMA suggestion for a mean generation time plus 10 years for John Dory, however for Eastern Jackass Morwong adopting T_{min} from the latest biomass estimates (2020 to 2022).
Bronwen Jones, Peter Yates and Ryan Keightley (DCCEEW) joined the meeting to deliver a presentation on the EPBC Act Listing Assessment for Redfish.
The RAG discussed the following points on the presentation by DCCEEW:

- That climate change impacts on rebuilding species productivity is not accounted for in the EPBC Act; not just for SESSF species, but all animals (noting that the Threatened Species Scientific Committee are currently considering this issue).
- The link between results from the SEA-MES voyage of increased ocean temperatures as an example of climate change impacts in the area of the SESSF.

Following the guidelines of the current HSP, the RAG recommended the following rebuilding time frames (starting from the last available year with a biomass estimate):

- Eastern Jackass Morwong: T_{Min} is equal to 4 years. 2 x T_{Min} (4) equals a 8-year rebuilding time frame.
- Redfish: T_{Min} is equal to 18 years. 2 x T_{Min} (18) equals a 36-year rebuilding time frame.
- John Dory: T_{Min} is not available. CSIRO has estimated the mean generation time at 8.7 years. Mean generation time + 10 years equals a 19-year rebuilding time frame.

The RAG noted strong concerns about the effects of climate change, which will have a profound influence on the recovery or rebuilding trajectories of at-risk species. Some species will not rebuild within the time frames specified by the Harvest Strategy Policy.

The RAG stressed the need to include impacts of non-fishing effects in the updated rebuilding strategy.

14. Species composition of data-poor deepwater sharks

Sushmita Mukherji gave a presentation on her PhD project entitled “Analysing trends in species composition and catch of data poor deepwater shark species”.
The RAG discussed the following key points:

- Lantern sharks are not in logbooks because they are not landed.
- Concerns with assumption that observer data is always correct. Deepwater sharks are difficult to identify, and observer expertise varies.
- Recommendation to put observer name against data to look at expertise across data coverage and connect with observers to scope their levels of confidence with shark identification.
- Recommendation to pull the key species and perform a species specific assessment.
- Concerns with the meaning of the common names Platypus Shark, Pearl Shark and Black Shark. Lantern Shark might also be confounded with some of those names.
- Industry member recommended creating a working group between industry and scientific members to assist in providing an accurate system to identify the split between shark species.

Other Business

No other business was considered.

Close of Meeting

Members noted that the next meeting will be held from 26–28 November 2024 in Melbourne. The Chair thanked the RAG for their contribution and closed the meeting at 16:22 hr AEDT.

Attachment A – Register of interests

Participant	Declaration
Dr Paul McShane (Chair)	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	Adjunct Senior Researcher, TSBE Economics member of SERAG Economic member of SEMAC Member of AFMA EWG Independent economics consultant No pecuniary or other interest in the SESSF.
Dr Geoff Tuck	Involved in Stock assessments. Interest in obtaining funding for future research. Principal investigator on the SESSF stock assessment project. Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification.
Dr 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 – Gulf of St Vincent's Prawn Fishery MAC Research Scientific Committee Scientific Member – Northern Prawn MAC Scientific Member – Gulf of St Vincent Prawn Fishery MAC Scientific Member – Tropical Tuna Resource Assessment Group Member – The Agri Collective Current projects: FRDC 2018-021 – Development and evaluation of multi-species harvest strategies in the SESSF IMOS Fishing Ships of Opportunity project (FishSOOP) FRDC 2023-063 – Design of a fishery independent longline survey for chondrichthyans in Northern Australia FRDC 2024-012 – Capturing fisher ecological knowledge of climate change: a Southern and Eastern Scalefish and Shark Fishery case study

	AFMA 2020-0807 – Bass Strait Scallop Fishery Survey – 2020-22 NSW 2021-1238 – Developing a harvest strategy framework for Aboriginal cultural fishing in NSW Traffic Project – Shark Product Traceability Sea Cucumber – Design and implementation of various sea cucumber dive surveys. Australia Bay – Qld Gulf of Carpentaria Developmental Fin Fish Trawl Fishery, onboard and EM observer work. WAFIC Project – Strategic Review of Western Australia's Shark Fisheries
Dr Jeremy Lyle	Adjunct Associate Professor (Institute for Marine and Antarctic Studies) Steering Committee Chair, RecFishing Research Coordination Program (FRDC) Scientific Board Member for the Tasmanian Association for Recreational Fishing (TARFish) - peak body for recreational fishing in Tasmania.
Mr Ross Winstanley	No pecuniary interest in the SESSF.
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), SSIA (sharks) and SPFIA (Small Pelagic Fishery) Industry member on both SERAG and SEMAC. SSIA is engaged by AFMA to collect shark industry biological data. Atlantis undertakes work to assist shared marine space developers (wind, oil etc) understand the fishing industry. Atlantis undertakes other work within the fishing industry including on MSC assessments. SETFIA is the PI on the orange roughy east AOS. 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, future industry data collection and consultation. Investment committee member of a large fund that owns fishing rights including SBT, ling and flathead.
Mr Nathan Jackson	Employed by AFMA, Senior Management Officer. Executive Officer (EO) of SERAG. No pecuniary or other interest.
Dr Robin Thomson	CSIRO Assessment Scientist. Acquiring funding for research purposes. Principal Investigator (PI) for close kin project for school shark. PI on close kin scoping study for blue-eye trevalla.
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 Rich Little	Employed by the CSIRO and through the organisation has in the past, and may in the future, receive funding for research related to the fishery. Assessment scientist. Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification. Project leader Southeast Australian Marine Ecosystem Survey (SEA-MES). Principal Investigator for the Species Distribution project.
Mr Ross Bromley	Principle of Girella Fisheries Services. Engaged by SSIA as SIDaC manager. Engaged by SETFIA as western orange roughy project manager. Member of Victorian Rock Lobster RAG. EO of Eastrock. Client representative of various MSC Certificates. No interest, pecuniary or otherwise.
Ms Sushmita Mukherji	PhD Student at University of Tasmania/Institute for Marine and Antarctic Studies Member of the IUCN Shark Specialist Group. No interest, pecuniary or otherwise.
Dr Peter Yates	Employed by DCCEEW. No interest, pecuniary or otherwise.
Ms Bronwen Jones	Employed by DCCEEW. No interest, pecuniary or otherwise.
Mr Ryan Keightley	Employed by DCCEEW. No interest, pecuniary or otherwise.
Dr Krystle Keller	Employed by ABARES. No pecuniary or other interest.
Dr Daniel Wright	Employed by ABARES. No pecuniary or other interest.
Dr Tim Emery	Employed by ABARES. No pecuniary interest in the fishery.
Ms Rikki Taylor	PhD student through University of Tasmania and CSIRO. No pecuniary or other interest.
Mr Andy Warmbrunn	Fishery Manager, Tas DNRE. No pecuniary or other interest
Dr Ashley Fowler	NSW DPI, Fisheries scientist. Involvement in NSW assessments. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.
Dr Geoff Liggins	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
Ms Sally Weekes	Employed by AFMA, Senior Manager Demersal and Midwater. No pecuniary or other interest.
Dr Lianos Triantafillos	Employed by AFMA, Manager Gillnet, Hook and Trap. No interest, pecuniary or otherwise.
Ms Michelle Henriksen	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 Audrey Kent	Employed by AFMA, Senior Management Support Officer, No pecuniary or other interest.
Ms Rebecca Jol	Employed by AFMA, Senior Management Support Officer, No pecuniary or other interest.

Attachment B – Status of action items from previous meetings

Complete/Redundant	Underway	Yet to start	Advice required

Table 1. Status 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	As soon as possible	Complete Collection for a trial period by SSIA has been included in the co-management arrangement.
	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	Redundant AFMA has recruited more fishery observers and will continue to deploy Australian nationals on New Zealand-flagged factory freezer vessels deemed as Australian boats. These vessels are amongst a handful of boats large enough to accommodate "buddy" trips, where new observers are mentored by more experienced staff. The use of Australian fishery observers also allows for greater flexibility with respect to opportunistic sampling and when boats unexpectedly return to port to affect repairs.
	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	Underway AFMA revised the eastern boundaries of the Flounder/Kingfisher and Babel Island Trawl Closures to follow the 200-metre isobath more closely. The changes reduce the size of the closures by 32 per cent and 7 per cent, respectively, and took effect on 16 May 2024.

					SETFIA submitted a research proposal on data collection in the rebuilding closures at the 2024 SESSFRAG data meeting. AFMA is currently evaluating this proposal.
	September 2023 Agenda Item 2: Data Updates	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).	CSIRO/ AFMA	2024 SESSFRAG Data Meeting	<u>Completed</u> AFMA and CSIRO have discussed this topic and research catches will not be scaled in future discard reports.
	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 series for Blue-Eye Trevalla (slope) will be considered under agenda item 4 for potential use in the 2024 assessment.
	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	As soon as possible	<u>Yet to start</u> AFMA will convene a working group to consider ageing and assessment priorities for SESSF Orange Roughy stocks prior to the 2025 SESSFRAG data meeting. AFMA is seeking advice from SERAG (at agenda item 5) as to the appropriateness of categorising Cascade Orange Roughy as a "trigger species" starting on 1 May 2025. This would be accompanied by additional concession conditions to improve observer coverage on the rare occasions that this stock is fished.
	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	As soon as possible	<u>Yet to start</u> Paul Burch (CSIRO) will progress this investigation in early 2025. AFMA will also convene a working group to consider ageing and assessment priorities for SESSF Orange Roughy stocks prior to the 2025 SESSFRAG data meeting.
	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/FAS	As soon as possible	<u>Yet to start</u> AFMA will convene a working group to consider ageing and assessment priorities for SESSF Orange Roughy stocks prior to the 2025 SESSFRAG data meeting.

		CSIRO to determine if there is now sufficient data to undertake an assessment of Western Orange Roughy.			
	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>Completed</u> AFMA granted scientific permits to the *Zeehaan* and *Moira Elizabeth* to undertake research fishing in the Murray Dogfish Closure (MDC) during the first six months of the 2024–25 SESSF season. These vessels have been fitted with electronic monitoring systems and are subject to dogfish catch triggers and 100% footage review prior to subsequent trips to the MDC. AFMA observers were also carried on both vessels during their first trip to the MDC. As of 1 October 2024, 71 tonnes of Orange Roughy have been caught in the MDC and no threatened dogfishes caught.
	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 repeat MSE testing.	CSIRO	As soon as possible	<u>Completed</u> Further testing of the assumption that biomass was at BMEY (i.e., B_{48}) during the reference years and whether this change resulted in any differences in the performance of the method was presented to the 2024 SESSFRAG Chairs' meeting. The RAG then provided the following advice: • In principle for Tier 4 species, the assessment method will be transitioned to use Dynamic Tier 4. This is based on MSE results that have shown that this approach has improved performance compared to the empirical Tier 4 because it provided improved performance statistics, reduced variability in RBCs and reduced sensitivity to chosen reference years with fewer assumptions required and the option to fit multiple CPUE series. This transition should, in practice, be applied on a case-by-case basis. • As with all assessments, there should be a review that each species meets the assumptions of the assessment approach, especially with respect to CPUE indexing abundance; • Reference periods were recommended to be reviewed for all Tier 4 species. • All Dynamic Tier 4 assessments require an agreed historical catch time-series.

					• For 2024, Blue-Eye Trevalla and Deepwater Shark (East and West) will be test cases for the application of the Dynamic Tier 4. However, the empirical Tier 4 will also be run as part of bridging analyses.
	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	As soon as possible	Completed AFMA has reduced the annual length collection target for Silver Trevally in the SESSF data plan (from 2000 to 1000) to accommodate the addition of the new biological sampling target of 1000 otoliths per annum for this species.
	November SERAG 2 2023 Agenda Item 5: Rebuilding Species	AFMA to provide the RAG with the Standard Operating Procedures (SOPs) for measuring gear (net) requirements in the SESSF.	AFMA	As soon as possible	Completed AFMA has updated the 2015 SOP for measuring fishing gear to include changes to Danish seine gear for the Commonwealth Trawl Sector that took effect on 1 May 2023. AFMA emailed the updated document to RAG members on 16 September 2024.
	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	As soon as possible	Completed AFMA is currently sampling from Sydney Fish Market.
	November SERAG 2 2023 Agenda Item 6: Blue-Eye Trevalla (Slope) Dynamic Tier 4 RBC advice	CSIRO to revise the CPUE standardisation, including targeting effects, species associations and area effects prior to the Dynamic Tier 4 assessment in 2024 (subject to review of the revised MSE results SERAG still supports this method).	CSIRO	As soon as possible	Underway These items will be discussed under agenda item 4 when selecting data inputs for the 2024 Blue-Eye Trevalla (slope) Dynamic Tier 4 assessment.

	November SERAG 2 2023 Agenda Item 6: Blue-Eye Trevalla (Slope) Dynamic Tier 4 RBC advice	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.	AFMA/ CSIRO/ Members	As soon as possible	Completed CSIRO convened six working group meetings relating to Blue-Eye Trevalla, Pink Ling and Deepwater Sharks prior to the 2024 SESSFRAG data meeting and a presentation on work to date was given at that meeting. Two further working group meetings were held prior to SERAG 1 2024.
	November SERAG 2 2023 Agenda Item 8: Advice on future assessments	CSIRO establish (with AFMA's assistance) a Pink Ling Working Group to advise on the Pink Ling (East) Tier 1 assessment	AFMA/ CSIRO/ Members	As soon as possible	Completed CSIRO convened six working group meetings relating to Blue-Eye Trevalla, Pink Ling and Deepwater Sharks prior to the 2024 SESSFRAG data meeting and a presentation on work to date was given at that meeting. Two further working group meetings were held prior to SERAG 1 2024.

Attachment C – Action items arising from SERAG 1, October 2024

Agenda Item	Description	Responsible entity
Agenda item 3: Pink Ling (East) Tier 1 base case	CSIRO to develop a formal process to estimate natural mortality for Tier 1 stocks prior to the 2025 SESSFRAG data meeting.	CSIRO
Agenda item 4: Selection of data inputs and reference periods for Dynamic Tier 4 assessments	Miriana Sporcic to compile a Blue-eye Trevalla CPUE time series excluding shots with <20% of this species for evaluation by the Pink Ling/Blue-eye Trevalla working group prior to SERAG 2, 2024.	CSIRO
Agenda item 10: Royal Red Prawn trigger value and assessment options	AFMA to correct erroneous depth records for Royal Red Prawn shots prior to any new assessment.	AFMA
Agenda item 12: Rebuilding species review and TAC advice	Paul Burch to investigate Eastern Jackass Morwong logbook discards and work with AFMA and ABARES to update the discard estimate for this species by mid-2025.	CSIRO