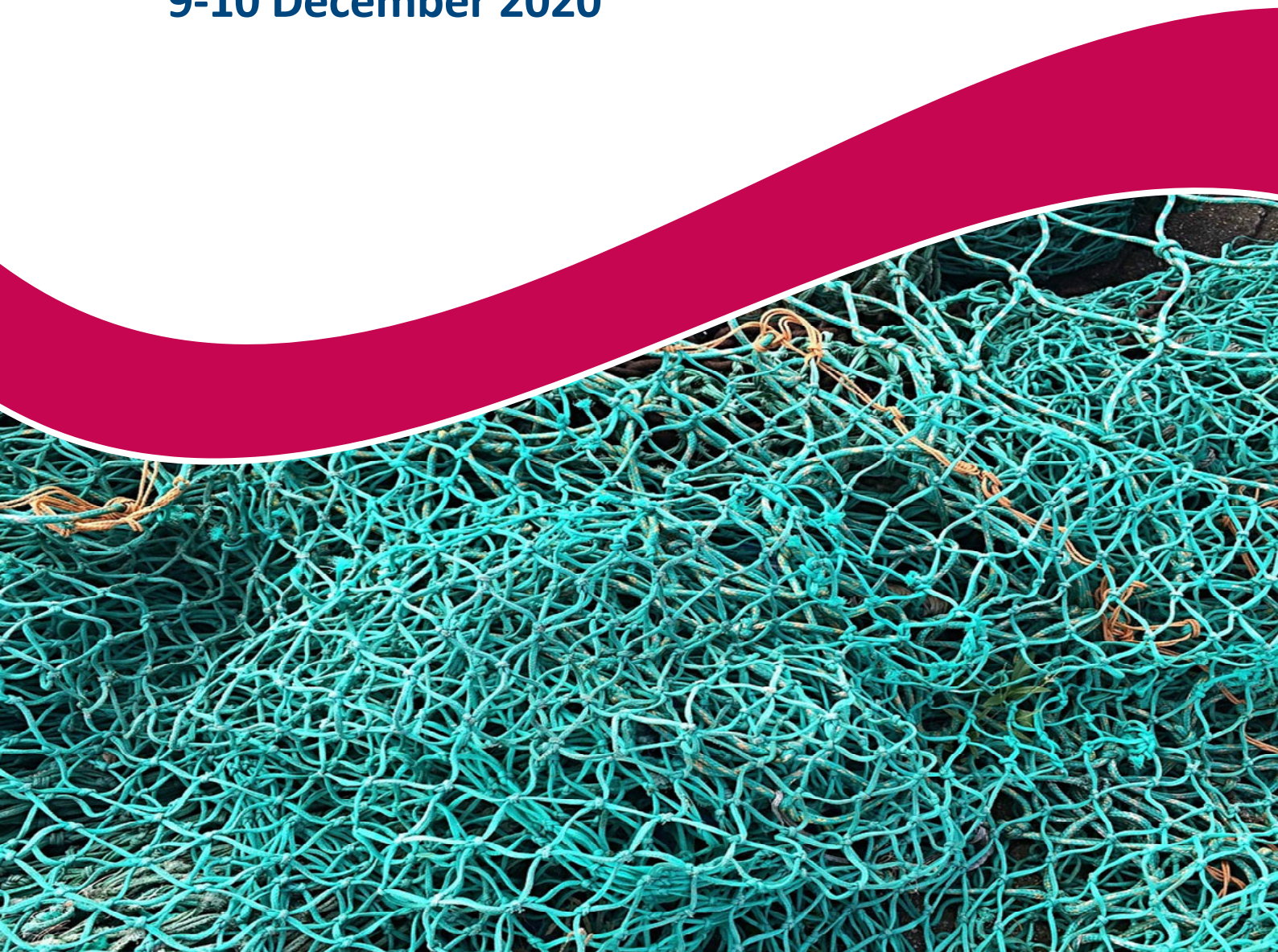


**South East Resource  
Assessment Group  
Meeting 2.2 Minutes**

**9-10 December 2020**



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# Agenda Item 1: Preliminaries

## 1.1 Welcome and apologies

1. Dr. Michael Steer (Chair) welcomed members, invited participants and observers to the meeting and made an Acknowledgement of Country Statement recognising the Aboriginal people as the traditional custodians of the lands on which we meet and paid our respects to their Elders, both past and present. Each attendee's Declaration of Interest was provided prior to meeting and noted by exception. Some attendees arrived later and at that point introduced themselves.
2. Apologies were noted for industry members Daniel Hogan and John Jarvis.

Member	Role
Dr. Michael Steer	Chair
Dr. Ian Knuckey	Scientific member, Fishwell Consulting
Mr. Ross Winstanley	Recreational member
Dr. Sarah Jennings	Scientific (economics) member
Mr. Daniel Hogan (apology)	Industry member - west
Mr. John Jarvis (apology)	Industry member - east
Mr. Simon Boag	Industry member - SETFIA
Mr. James Woodhams	Scientific member, ABARES
Dr. Geoff Tuck	Scientific member, CSIRO
Mr. Andrew Penney	Scientific member, Pisces Australis
Mr. Daniel Corrie	AFMA member
Ms. Mardi Albert	AFMA, executive officer

Invited Participants	
Dr. Miriana Sporcic	Assessment scientist, CSIRO
Dr. Jemery Day	Assessment scientist, CSIRO
Dr. Paul Burch	Assessment scientist, CSIRO
Dr. Pia Bessell-Browne	Assessment scientist, CSIRO
Dr. Jemery Day	Assessment scientist, CSIRO
Dr. Robin Thompson	Assessment scientist, CSIRO
Dr. Geoffrey Liggins	Fisheries scientist, NSW DPI
Dr. Ashley Fowler	Fisheries scientist, NSW DPI
Mr. Nicholas Hill	Fisheries scientist, IMAS (minute taker)
Ms. Fiona Hill	Senior Manager, AFMA
Dr. Tim Emery	ABARES observer
Mr. Will Mure	Industry observer (day 2)
Mr. Christopher Spurrier	Industry observer (agenda item 8)
Mr. Dennis Brown	Industry observer (agenda item 8)

## 1.2 Declarations of Interest

3. Declarations of interest ([Attachment A](#)) were declared prior to the meeting.
4. Additional declarations of interest included:
  - Simon Boag declared conflicts of interest with agenda items where total allowable catch (TAC) or recommended biological catch (RBC) recommendations were being made, specifically agenda items 2, 3, 5, 6 and 7.
  - Ian Knuckey declared a conflict of interest with agenda item 3.
  - Will Mure declared conflicts of interest with agenda items where TAC or RBC recommendations were being made (present for day 2 only), specifically agenda items 6 and 7.
  - Dennis Brown and Christopher Spurrier (industry) declared conflicts of interest for agenda item 8.
5. SERAG decided that any member with declared conflicts of interest would leave the meeting when advice was being provided, but could remain present during the discussions.

## 1.3 Adoption of agenda

6. The agenda was adopted with no major changes ([Attachment B](#)).



## 1.4 Action items review

7. Action items were reviewed and the status of each item was noted as in [Attachment C](#).
8. Actions arising from this meeting are included at [Attachment D](#).

## 1.5 Actions/recommendations for agenda item 1

**Action item 1:** Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) to table an item at the 'ISMP Tier 4 sampling targets working group' to consider sampling protocols for port-based sampling given observed differences between port-based and onboard length-frequency samples in school whiting. To be completed by January 2021.

**Action Item 2:** Action item 2 from SERAG 2019 meeting to be updated to incorporate the following. "Partial and total lengths were collected during Automatic long line trial in Bass Strait and were used to inform the 2020 gummy shark stock assessment. SharkRAG will review the ongoing need for this data at a data workshop in Feb 2021, and build into SIDAC if required."

## 2. Agenda Item 2: Tier 1 school whiting

9. Dr. Jemery Day (CSIRO) presented updated outputs for the 2020 Tier 1 school whiting stock assessment. This included a summary of changes made to the stock assessment and its associated inputs from 2017 to 2020. SERAG discussed these updated outputs, potential future research requirements and a Recommended Biological Catch (RBC) for school whiting for the 2021-22 Southern and Eastern Scalefish and Shark Fishery (SESSF) fishing year.

### 2.1 2020 school whiting stock assessment

- The previous stock assessment in 2017 estimated the biomass at 47 per cent of virgin spawning stock biomass (47%  $SSB_0$ ).
- The 3-fleet model presented at the SERAG 2.1 meeting (November 2020) had a similar structure to the 2017 base case:
  - Three fleets.
  - Natural mortality (M) estimated at 0.68.
  - Recruitment estimated to 2016.
- The preliminary 5-fleet model presented at the SERAG 1 meeting (October 2020) featured revisions to data inputs and this revised 5-fleet model was accepted as the base case:
  - Additional data incorporating NSW catch time series, CPUE, length and age data.
  - Catch history – updated TAS and NSW catch data included.
  - Age data – age adjustment field corrected
  - Ageing error matrix for NSW age data updated
  - Estimates of discard rates for NSW trawl and prawn trawl fleets included.
  - M fixed at 0.6.

- The revised 5-fleet model featured:
  - Recruitment estimates up to 2016.
  - Estimated 2021 stock status of 41%  $SSB_0$ .
- The base case outcomes were presented:
  - Model fits from the proposed base case were presented to SERAG for discussion.
  - The model estimated fishing mortality to be above the target fishing mortality ( $F_{\text{targ}}$ ) for the last three years.
  - The range (95% confidence intervals) for the estimated stock status was 27%-39% $B_0$  in the base case model, narrower than the range obtained from the preliminary three-fleet model (20%-50%  $SSB_0$ ).
- Sensitivities, likelihood profiles and jitter analysis were also presented.

## 2.2 General discussion

10. Dr. Day presented a range of catch projections to inform discussions relating to setting of 2021 RBCs. The RAG also discussed future research needs.
  - Catches were projected under average and low recruitment scenarios (for recruitment that is not able to be estimated – from 2017 onwards):
    - Under the average recruitment scenario the stock status increases with the stock expected to come close to the target (greater than 47%  $SSB_0$ ) by 2026.
    - Under the low recruitment scenario (with low recruitment assumed from 2017-2023 followed by a return to average recruitment), to the stock status remains below 40%  $SSB_0$  up until 2025. Under this scenario, even with recruitment returning to average from 2024 onwards, the stock is not projected to recover to 47%  $SSB_0$  until 2040.
    - A range of sensitivities were explored using different fixed parameter values (steepness ( $h$ ), natural mortality ( $M$ ), recruitment variability, length at 50% maturity), halving and doubling the weight on CPUE, length and age data, and systematically excluding combinations of CPUE fleets .
11. SERAG discussed implications of recommending a range of different RBCs, noting the school whiting TAC is generally set under a 3-year multi-year TAC (MYTAC).
12. SERAG noted a number of issues to be monitored or resolved before the next assessment:
  - Continue to explore stock structure – this is being progressed as part of the FRDC project led by Dr. Karina Hall (NSW DPI).
  - Investigate the peak of 24 cm fish in the 2018 trawl onboard length data (actioned).
  - Automatic processing of NSW length and age data (may need additional resourcing).
  - Encourage ongoing collection and provision of NSW data (supported).
  - Preferably conduct retrospective analyses and likelihood profiles only on the final base case, in the future, rather than on a preliminary base case, as was done with this assessment (supported on case-by-case basis).
  - Consider seismic effects on catches and catch rates in Bass Strait (to be considered at SESSFRAG 2021 Chairs' and data meetings).
  - Consider potential time-blocking for both selectivity and retention of NSW fleets to account for possible changes in gear and/or management regimes (supported).
  - Fishery indicators should be monitored to support the stock remaining above  $B_{\text{lim}}$  during the 3-year MYTAC process (supported and part of the MYTAC analysis process).
13. SERAG agreed that sensitivities, likelihood profiles and retrospectives should be prioritised by stock assessment scientists provided the base case scenarios are not altered without RAG discussion/approval. Further guidance is provided in the SESSF TAC setting guidelines document.

## 2.3 Actions/recommendations for agenda item 2

### Recommendations:

- SERAG recommends a three-year MYTAC using the average of the three projected RBCs from 2021-2023 (2,237 t). The average of model projected discards over the same period is 378 t.

**Action item 3:** AFMA to investigate the peak of 24 cm fish in the 2018 trawl onboard length data for school whiting.

**Action item 4:** SESSFRAG to consider updating the 'TAC setting and assessment guidelines' document to include priorities for undertaking sensitivities, likelihood profiles, retrospectives etc. SESSFRAG 2021 Data meeting.

## 3. Agenda Item 3: Rebuilding species review

14. Daniel Corrie (AFMA) presented this agenda item seeking input from SERAG on the review of rebuilding strategies for redfish and blue warehou. Updates on recent catch and abundance trends were presented for each species and SERAG was asked to provide comment on the need for any update or amendment to current rebuilding strategies.

### 3.1 Companion 'metier' analysis

15. Dr. Paul Burch (CSIRO) presented a multivariate companion species analysis that investigated the link between target species catch and unavoidable bycatch of rebuilding species. The analysis incorporated a range of factors such as area, depth fished and gear type – also known as metiers.
16. This analysis is intended to inform SERAG on the implications of changing target species catches, and the potential impacts on rebuilding species. For example, one can consider the proposed TAC for a target species (e.g. flathead), in order to estimate unavoidable catch levels for rebuilding species.
  - The main target species associated with catch of blue warehou, eastern gemfish and eastern redfish included blue-eye trevalla, flathead, blue grenadier and pink ling.
  - The main gear type associated with bycatch of rebuilding species is otter trawl.
  - Preliminary analysis of the proposed 2021 flathead total allowable catch (TAC) increase suggested that catch of redfish may increase by approximately 4 t.
  - Using logbook data from 2018 and 2019, and expected 2021-22 TACs for the main companion species, the estimated (95%CI) unavoidable bycatch during 2021 was:
    - Blue warehou – 29.1 t, with a range between 21.2 and 39.9 t.
    - Eastern gemfish – 81 t, with a range between 68.3 and 95.8 t.
    - Eastern redfish – 32.2 t, with a range between 26.7 and 38.7 t.
17. SERAG supported the use of the companion species (metier) analysis as a useful tool for understanding the level of unavoidable bycatch and to assist setting bycatch TACs into the future.

### 3.2 Redfish rebuilding strategy

18. Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) presented two summary documents showing spatio-temporal trends in redfish catch and indicators of abundance over time. This included exploring catch over time across a range of factors including gear type, area, vessel, depth and shots > 250 kg.
19. SERAG noted the following:
  - Overall, the analysis showed no substantial change in the distribution of redfish catch and no evidence of targeting by individual boats, noting that two boats showed consistently higher catches than other boats, however this was thought to be due to fishing location.
  - Most redfish are caught on the NSW south coast at depths of roughly 200 m.
20. SERAG supported using the document presented by Dr. Paul Burch (CSIRO) as the standard format for future annual reviews of recovering species, with some additions (see recommendations).
21. SERAG recommended that no major amendments to the current redfish rebuilding strategy were required, however emphasised the need to investigate gear modifications to reduce bycatch of redfish – increased mesh size in particular.

### 3.3 Blue warehou rebuilding strategy

22. Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) presented two summary documents showing spatio-temporal trends in blue warehou catch and indicators of abundance over time. This included exploring catch over time across a range of factors including gear type, area, vessel, depth and shots > 250 kg.
23. SERAG noted the following:
  - Recent catches have been higher than previous years.
  - There is no obvious change in catch distribution by area or depth and no evidence targeting by individual boats.
  - The TAC is currently set at 118 t, with a trigger of 27 t for the eastern stock and 91 t for western stock.
24. The RAG raised concerns regarding the failure of overfished stocks on the east coast to recover, and noted the challenges associated with monitoring and assessment, management options, and how to disentangle the effects of fishing and climate change (see action item 5).
25. Daniel Corrie (AFMA) noted a number of proposed changes to the Blue Warehou Rebuilding Strategy based on findings of the five-year review. Advice was sought from SERAG on:
  - how to establish a reliable index of abundance considering blue warehou are now actively avoided and therefore CPUE is not considered a useful index of abundance; and
  - how to update the expected rebuilding timeframes in the rebuilding strategy, noting there are no reliable estimates of abundance or signs or recovery.
26. SERAG noted the following:
  - The current objective of the rebuilding strategy is to rebuild to the limit reference point by 2024, however this is unlikely to occur.
  - The companion species analysis estimates that the proposed increase in the flathead TAC for 2021 is likely to have implications on the catch of redfish.
  - It is difficult to monitor the recovery of rebuilding species as the CPUE series is influenced by avoidance behaviour.
27. Noting there are a number of proposed changes to the Blue Warehou Rebuilding Strategy as part of the five-year review, SERAG recommended no further amendments to the Blue Warehou Rebuilding Strategy.

### 3.4 Actions/recommendations for agenda item 3

#### **Recommendations:**



- Dr. Paul Burch (CSIRO) to update the métier analysis annually to provide estimates of future companion species catches, given fleet behaviour and catch compositions change over time.
- From 2021, AFMA to modify the annual review component of the rebuilding species strategies to reflect the analysis undertaken by Dr. Paul Burch (CSIRO) including the targeting analysis, catch and effort maps, and also incorporate:
  - discard estimates;
  - state catches;
  - previous TACs to provide appropriate context against historical catches; and
  - an analysis that investigates vessel targeting behaviour by looking at repeated large shot sizes at similar locations/dates for rebuilding species.
- AFMA to consider updating the environment sections of the rebuilding strategies to reflect recent published material on the impact of climate change on rebuilding species.

28. The RAG suggested AFMA needs to reconsider its approach to managing depleted and depleting stocks to account for environmental change as a likely factor inhibiting rebuilding and contributing to further decline for several SESSF stocks.

**Action item 5:** Daniel Corrie (AFMA) and Dr. Michael Steer (Chair), to draft a letter to the AFMA Commission for its March 2021 meeting on behalf of SERAG (and to be endorsed by SERAG) expressing its concern around:

- the difficulty of disentangling environmental changes, recruitment failure and fishing mortality as reasons for several depleted stocks failure to rebuild.
- the increasing number of SESSF quota species assessed as declining.

**Action item 6:** As part of the Blue Warehouse Rebuilding Strategy review, AFMA to clarify the process and evidence (i.e. stock assessments or other indicators) used to inform the original rebuilding timeframes and bycatch TACs.

## 4. Agenda item 5: Eastern Gemfish Rebuilding Strategy – 5-year review

29. Daniel Corrie (AFMA) presented this agenda item seeking input from SERAG on the five-year review of the Eastern Gemfish Rebuilding Strategy. Updates on recent catch and abundance trends were presented for eastern gemfish and SERAG was asked to provide comment on the need for any update or amendment to the rebuilding strategy as part of the review process.

### 4.1 Targeting analysis

30. Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) presented two summary documents showing spatio-temporal trends in eastern gemfish catch and indicators of abundance over time. This included exploring catch over time across a range of factors including gear type, area, vessel, depth and shots > 250 kg.
- Catches typically peak in winter/spring for trawl sector when the fish aggregate on the east coast. Annual retained catches had been less than 50 t for ten years, until 2019 when 60 t was recorded as retained.
  - Recent trends in standardised CPUE for the spawning fishery suggest the stock remains depleted, despite a small increase in CPUE around 2010.

- Recent trends in standardised CPUE for the non-spawning fishery shows a slight increase in recent years, however this should be treated with caution as the index is still below the long term average.
- Distribution of catch is consistent along the southern NSW coast to eastern and western Tasmania. The depth of fishing was found to be bimodal – with both a shallow (100m) and deep (400m) component.
- A bubble plot of catch by vessel showed no vessels with consistently high catches over time, indicating that no vessels appear to be targeting eastern gemfish.

## 4.2 General discussion

- The COVID-19 pandemic led to some fishers changing their fishing behaviour. Industry noted hook operators fished more in Tasmania to target blue-eye trevalla. This led to higher catches and catch rates of eastern gemfish than seen in previous years. An industry member also noted that his eastern gemfish catch over recent years (prior to COVID-19) had slowly been increasing, suggesting potential signs of recovery.
- A recent review of stock structure of gemfish showed that catches on the west coast of Tasmania are generally comprised of fish from the eastern gemfish population, with western gemfish being encountered west of King Island.
- Stock delineation in the SESSF Management Plan does not directly align with this contemporary information on stock distribution, however the stocks are known to mix in the area between zone 40 and 50 which makes redefining the boundary difficult, and probably unnecessary.
- Total mortality (Commonwealth/State catch and discards) has ranged from 100-200 t over the last decade. As a result, total mortality has been higher than the 100 t catch projections used to inform recovery timeline scenarios. This should be considered by SERAG in 2021, pending an update to the eastern gemfish stock assessment.

## 4.3 Actions/recommendations for agenda item 5

### Recommendations:

- The mandatory reporting requirement for eastern gemfish landings to support data collection can be discontinued subject to demonstrating that the ISMP sampling targets are being achieved.
- SERAG recommends that the eastern gemfish stock assessment is updated in 2021. This stock assessment should look to incorporate:
  - recent catch/discard information;
  - a range of total mortality (fixed catch) future projection scenarios;
  - average and low recruitment scenarios;
  - the non-spawning CPUE series, if possible.

**Action item 7:** Dr. Miriana Sporcic (CSIRO) to explore available eastern gemfish CPUE standardisations in time for the August 2021 Data meeting.

**Action item 8:** AFMA/CSIRO to consult with Dr. Rich Little with regards to incorporating non-spawning gemfish CPUE as an alternative primary index abundance in the 2021 eastern gemfish stock assessment. Update to be provided to SERAG out of session.

## 5. Agenda item 6: Incidental TACs for rebuilding species

31. Daniel Corrie (AFMA) introduced this item seeking TAC advice from SERAG for eastern gemfish and blue warehou for the 2021-22 SESSF fishing season, noting that eastern redfish RBC and TAC was considered at the November 2020 meeting. This agenda item is linked to agenda items 3 and 5 which presented historical trends in catch and abundance for these rebuilding species.

### 5.1 General discussion

32. Daniel Corrie (AFMA) presented an overview of historical bycatch TACs for each species, including recommendations from the relevant RAGs wherever the bycatch TAC changed.
33. SERAG discussed the implications of different bycatch TACs on recovery timelines for rebuilding species, and the implications of changes to TACs for companion species for bycatch of rebuilding species.
- It is unclear whether the current bycatch TAC for eastern gemfish was based only on projected recovery times, or whether unavoidable levels of bycatch were also considered.
  - The companion species analysis estimates an increase of eastern gemfish catches in the flathead metiers due to the increase in TAC for the 2021-22 fishing year.
  - Current catches of blue warehou are well below the 118 t bycatch TAC in recent years.
  - The RAG should consider the implications of limiting catches by setting bycatch TACs below recent catch levels. If current catch is truly unavoidable, there is the potential for increased and unreported discarding without reducing total mortality.
34. SERAG requested a summary of expected catches of rebuilding species from the companion analysis based on the 2021-22 TACs proposed for target species.

### 5.2 Actions/recommendations for agenda item 6

#### Recommendations:

- SERAG recommends the RBC for blue warehou, eastern redfish and eastern gemfish is maintained at 0 t.
- In determining bycatch TACs, SERAG recommend that SEMAC consider the following:
  - RBCs continue to be set at zero, with bycatch TACs set at a level to cover unavoidable catches without promoting discarding and misreporting.
  - The results from the companion species analysis completed by Dr. Paul Burch (CSIRO), as well as projections from the most recent Tier 1 stock assessment for eastern gemfish (2010) and eastern redfish (2020), should be considered when setting bycatch TACs.
  - Total fishing mortality should be minimised to promote recovery, whilst consideration should be given to the potential economic impact of changes to bycatch TACs or management arrangements for other key companion species (i.e. flathead, pink ling and blue grenadier).

## 6. Agenda item 7: Tier 4 assessments

35. Dr. Miriana Sporcic (CSIRO) presented this agenda item outlining the outputs of Tier 4 assessments for eight species/stocks: silver trevally, ribaldo, mirror dory east, mirror dory west, offshore ocean perch, mixed oreo, royal red prawn and blue-eye trevala. Once this information was presented, advice was sought from SERAG in regards to recommending RBCs for the 2021-22 SESSF fishing year.

## 6.1 Actions/recommendations from agenda item 7

36. A summary of the Tier 4 assessments, SERAG discussion and recommendations for each of the eight species is provided in the 2021 SESSF Species Summary document.

**Action item 9:** Dr. Miriana Sporcic (CSIRO) to work in collaboration with Geoffrey Liggins (NSW DPI) to develop a preliminary historical catch time series for offshore ocean perch. It should be noted that the early-period catch history may require further validation before an agreed series can be reached.

**Action item 10:** AFMA to draft a paper detailing the evidence used to justify not applying default discount factors for Tier 4 species due to protection afforded by deepwater closures. To be completed in time for SERAG 2021.

**Action item 11:** AFMA to provide the evidence base for orca depredation being used to exclude the use of discount factors in blue-eye trevalla tier 4 stock assessments.

## 7. Agenda item 8: Hagfish research plan

37. The Chair noted that Mr Christopher Spurrier and Mr Denis Brown from Hagfish Australia Pty Ltd were observing this item. Natalie Couchman (AFMA) presented this item seeking advice from, and to seek adoption of the revised draft Hagfish Research Plan (the draft Research Plan) and proposed management arrangements pertaining to the use of hagfish traps in the SESSF, by SERAG. Key aspects of the revised Hagfish Research Plan and proposed management arrangements were presented to SERAG for discussion as well as input from the industry observers.
38. Conflicts of interest were noted for Mr Spurrier and Mr Brown. SERAG agreed that the industry observers can be engaged during discussion, but confidential information will not be discussed. Confidential information is to be shared with RAG members only.

### 7.1 Revised research plan

39. Ms Couchman detailed key amendments to the draft Research Plan, based on outcomes from SERAG meeting 1 2020, including:
- Consideration of the use of an enhanced SAFE (eSAFE) or CPUE based assessment, noting hyper-stability should be considered in considering the use of CPUE - under AFMA's Ecological Risk Management framework, for species assessed as high risk under the bSAFE method, it is a management choice whether to assess the species further using the eSAFE method, a fully quantitative stock assessment, or to take more immediate management action to reduce the risk. This is now reflected in the draft Research Plan.
  - Increase in the number of control traps per line to 5-10% to determine the selectivity of the gear. A power analysis could be used to inform the appropriate percentage. Longer term, additional research should be undertaken into the efficacy of escape hole diameter - this is now reflected in the draft Research Plan. Power analysis to be considered in future.
  - Explore port sampling and freezing of samples as an alternative to observers - this is now reflected in the draft Research Plan. Port sampling and on board measurements will be trialled in the first year of the Plan to determine the most efficient method to meet sampling targets.

- Catches in research zone 60 should be re-examined as the depth range in this zone does not align with hagfish distribution - catches recorded in Zones 60 and 70 were found to be data errors. Zone 60 has been omitted from the Plan and Zone 30 added to provide spatial coverage to the north and south of currently fished areas.
- Advice to be provided concerning the catch allowance per hagfish research zone once additional analyses have been considered – no changes.
- Research should be undertaken into discard mortality - additional research noted in the draft Research Plan.
- Logbook data now listed to be at a high resolution to capture localised depletion - additional data requirements included in the draft Research Plan.
- Ms Couchman detailed additional management measures proposed to be implemented to take effect for the 2021-22 fishing season, until the Research Plan is enacted in full:
  - Limit the take of hagfish to the species currently being targeted, the common hagfish (*Eptatretus cirrhatus*).
  - Implement a precautionary maximum catch limit of 40 t until the Research Plan is adopted. This represents a precautionary limit set at approximately 50% of the historical maximum catch per fishing season of the fishery.
  - Require a minimum of 100 escape holes of at least 18 mm to minimise discard and post-capture mortality.
  - Implement 10% observer coverage.
  - Review existing logbook and CDR reporting for improvements.
- SERAG noted that the bSAFE assessment method is not currently designed to calculate swept area for hagfish traps.
- SERAG noted the strategy for setting catch limits in other jurisdictions:
  - NZ approach – two options - combined catch limit, spread over 10 zones, based on average catch over past 7 years or average of the two years showing the highest reported landings out of the past 7 years.
  - Oregon set a catch limit based on their highest catch since 1988.
- SERAG noted the need for clarification as to what is needed to undertake a sustainability and ecological risk assessment of the fishery.
- An industry member noted that the draft Research Plan is a positive step forward and was supportive to the proponent and AFMA for the work done, noting that a collaborative approach will lead to a better outcome for the fishery.
- A scientific member noted the need for a timeline with regard to the analysis, reporting and reviews within the draft Research Plan (see recommendations).
- Industry observers noted that a catch limit of 40 t will mean that the fishery will not be economically viable and therefore the data needed may not be able to be collected.

## 7.2 Hagfish fishery analysis

40. Mr. Andrew Penney presented a non-confidential summary of the analyses undertaken which looked at catch, effort and CPUE trends in relation to hagfish to inform SERAG discussions surrounding abundance and sustainability issues. SERAG noted the following key conclusions:
- There are several logbook data records with apparent errors, particularly start and/or end position errors, but also some errors in effort data. Existing logbook records should be inspected to try and correct errors where possible, and protocols should be implemented to minimise future logbook data entry errors for this fishery.
  - SSSF statistical zones are too large to use for spatial stratification of CPUE analysis, particularly for the purpose of detecting localised depletion. The SSSF Zones may be used for other management



purposes, but smaller spatial units should be used for analyses. Analyses indicate that 1-degree cells are probably an appropriate resolution for future CPUE data analysis, at least until the amount of available data increases.

- There is little basis in current data from which to recommend precautionary catch limits. CPUE trends are variable.
- The species is known to aggregate in response to presence of discarded offal or baited traps by following olfactory cues. Such aggregation will certainly result in CPUE hyperstability, but to what extent is unknown.
- SERAG noted a difference in discard rates between logbook and observer data, which should be investigated. SERAG noted that only three hagfish trips have been observed. Industry observers noted that very little discarding occurs given selectivity of the gear, and that hagfish are kept alive for long periods of time when exported and therefore suggested there is low post-capture mortality. SERAG noted that little information was available on post-release survival of hagfish.
- Industry observers noted that there was confusion in how positioning data is recorded by fishers in logbooks relative to how it was treated during Mr. Andrew Penney's analyses. Industry observers noted that coordinates are provided at the first point gear is deployed, four strings of traps are then dropped consecutively inshore/offshore from the last. Then, coordinates are provided for the final position at the end of the last string. The two coordinates provided represent two corners of a grid fished by the gear.
- Industry were generally supportive of Mr. Andrew Penney's analysis and for the draft Research Plan to undergo further consultation, but the finer details of the Research Plan require discussion (see recommendations).

### 7.3 Actions/recommendations for agenda item 8

#### Recommendations:

- SERAG recommends that the draft hagfish research plan be revised to include:
  - Timeframes for regular reporting and review of the plan and collected data and indicate when a sustainability assessment is expected to be completed.
  - Updated research zones and catch limits applied per research zone, to provide for collection of data and management of catch limits at a finer spatial scale. This is to be informed by analyses undertaken by Mr. Andrew Penney.
- Once revised, the updated draft hagfish research plan is to undergo further consultation with industry and relevant stakeholders, prior to further consideration by SERAG.
- Until the hagfish research plan is implemented, SERAG recommends:
  - The take of hagfish is limited to the species currently being targeted, being the common hagfish (*Eptatretus cirrhatus*).
  - That a precautionary maximum catch limit should be set at 40 t (approximately 50 per cent of total catches averaged over the last two fishing seasons (2018-19 and 2019-20)), noting that it is not currently known whether this level of take is sustainable. The catch limit should be spatially distributed to manage the risk to the resource. Mr. Andrew Penney to conduct further analyses to inform the development of this spatial management approach.
  - Each hagfish trap to have a minimum of 100 escape holes each with a minimum diameter of 18 mm.
  - Observer coverage to be implemented at 10 per cent coverage.
  - Review of existing logbook and catch disposal record (CDR) reporting, to identify improvements to reporting accuracy (e.g. location and discards).

**Action item 12:** AFMA to distribute the paper for 'Agenda Item 8 – Hagfish research plan' to all attendees at SERAG 2.2, including observers.

## Attachment A: Declaration of conflicts of interest

Member	Declaration
Dr Michael Steer (Chairperson)	A/Research Director SARDI Aquatic Sciences Chair of SERAG Member of SEMAC Member of SESSFRAG No pecuniary interest in the SESSF.
Dr Sarah Jennings	Economics member on SESSFRAG. Economics member on SEMAC. Economics member on SERAG. 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.
Mr Daniel Corrie	Employed by AFMA. Manager of Southern Trawl, Scallop and Squid Fisheries. No pecuniary or other interest in the SESSF.
Dr Geoff Tuck	CSIRO. Involved in stock assessments. Interest in obtaining funding for future research. Principal investigator on SESSF stock assessment project.
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	<b>Positions:</b>  Director – Fishwell Consulting Pty Ltd  Director – Olrac Australia (Electronic logbooks)  Deputy Chair – Victorian Marine and Coastal Council  Chair – Northern Prawn Fishery Resource Assessment Group  Chair – Tropical Rock Lobster Resource Assessment Group  Chair – Victorian Rock Lobster and Giant Crab Assessment Group

	<p>Chair – Victorian Central Zone Abalone Fisheries Resource Advisory Group</p> <p>Chair – Gulf of St Vincent’s Prawn Fishery MAC Research Scientific Committee</p> <p>Scientific Member – Northern Prawn Management Advisory Committee</p> <p>Scientific Member – SESSF Shark Resource Assessment Group</p> <p>Scientific Member – SESSF Great Australian Bight Resource Assessment Group</p> <p>Scientific Member – Gulf of St Vincent’s Prawn Fishery Management Advisory Committee</p> <p>Scientific Member – Tropical Tuna Resource Assessment Group</p> <p>Scientific Member – SESSF Resource Assessment Group</p> <p><b>Current projects:</b></p> <p>FRDC 2019-027 Improving and promoting fish-trawl selectivity in the SESSF and GABTS</p> <p>FRDC 2019-072 A survey to detect change in Danish Seine catch rates of flathead and school whiting resulting from CGG seismic exploration.</p> <p>FRDC 2019-129 Potential transition of shark gillnet boats to longline fishing in Bass Strait - ecological, cross-sectoral, and economic implications</p> <p>FRDC 2017-069 Indigenous Capacity Building</p> <p>FRDC 2016-116 5-year RD&amp;E Plan for NT fisheries and aquaculture</p> <p>FRDC 2018-021 Development and evaluation of SESSF multi-species harvest strategies</p> <p>FRDC 2017-014 Informing structural reform of South Australia's Marine Scalefish Fishery</p> <p>AFMA 2020/0807 Bass Strait Scallop Fishery Survey – 2020-22</p> <p>Traffic Project Shark Product Traceability</p> <p>NT Fisheries Design and implementation of a tropical snapper trawl survey</p> <p>Sea Cucumber Ass. Design and implementation of a sea cucumber dive survey Information to support non-detrimental finding of fisheries for Black Teatfish and White Teatfish</p> <p>Australia Bay Information to support Wildlife Trade Operation for the Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery</p> <p>Tas. Abalone Scientific Advisor for Tasmanian Abalone Council Ltd</p> <p>PEMSEA Developing EAFM Plan of Red Snapper for Arafura and Timor Seas Region</p>
Mr James Woodhams	ABARES. No current interest pecuniary or otherwise. Any potential future interest in research funding will be declared as necessary.
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 John Jarvis	Commonwealth Trawl Sector boat and quota SFR holder. Member of SETFIA. Worked with NSW Primary Industry Minister for Comfish.
Mr Simon Boag	Runs a fisheries consulting firm Atlantis Fisheries Consulting Group. Clients include associations such as SETFIA, SSIA, SPFIA but also other private clients. SSIA was engaged by AFMA to collect biological data in the shark fishery. Non-beneficiary Director of two fishing companies in the SESSF one of which is a significant quota owner. Industry member on SERAG and SEMAC. Member (Chair) of Seine and Trawl Advisory Group (STAG).
EO Ms Mardi Albert	Employed by AFMA. Executive Officer of SERAG. No interest in SESSF, pecuniary or otherwise.
<b>Invited Participant</b>	<b>Declaration</b>
Dr Robin Thomson	CSIRO, assessment scientist. Acquiring funding for research purposes. Principal Investigator 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.
Dr Jemery Day	CSIRO, Assessment scientist. Acquiring funding for research purposes. PI – SESSF species stock structure review Interests in promoting good science. Scientific member on SARAG.
Dr Paul Burch	CSIRO, assessment scientist. Principal Investigator for data services project. CSIRO representative at the Fisheries Statistics and Information Working Group (a sub-committee of the Australian Fisheries Management Forum). Acquiring funding for research purposes.
Dr Pia Bessell-Browne	CSIRO. Assessment scientist. Acquiring funding for research purposes
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. Involvement in NSW resource assessments. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.
Dr Karina Hall	NSW DPI, Fisheries scientist. Involvement in NSW resource assessments. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.
Mr Nick Hill	IMAS UTAS/CSIRO, Fisheries scientist. Potential interest in the acquisition of funding for research/assessment purposes concerning cross-jurisdictional stocks.

# Attachment B: SERAG 2.2 meeting agenda

## AGENDA

Day 1: Wednesday 9 December 2020

Time: 9am to 4.15pm

Chair: Dr Michael Steer

Time	Item	Presenter
09:00	<b>Agenda item 1. Preliminaries</b> Acknowledgement of country, introductions and apologies Declarations of interest Adoption of agenda Action items review	Chair (30 mins)
09:30	<b>Agenda item 2. Tier 1 school whiting</b> Updates from base case Discussion RBC recommendation	Jemery Day (3 hours)
10:30	<i>15 min break</i>	
10:45	<i>School whiting continued</i>	
12:45	<i>LUNCH – 30 min break</i>	
13:15	<b>Agenda item 3. Rebuilding species review</b> Eastern Redfish Rebuilding Strategy Targeting and companion species analysis Annual review Blue Warehou Rebuilding Strategy Targeting and companion species analysis Annual review Input to revised rebuilding strategy 2021	Paul Burch Dan Corrie (3 hours)
16:15	<i>End of Day 1</i>	



## Day 2: Thursday 10 December 2020

Time: 9am to 4.15pm

Time	Item	Presenter
09:00	<b>Agenda item 5. Eastern Gemfish Rebuilding Strategy – 5-year review</b> Annual review Input into 5-year review of rebuilding strategy	Dan Corrie (1 hour)
10:00	<b>Agenda item 6. Incidental TACs advice for rebuilding species</b> Blue warehou Eastern redfish Eastern gemfish	Dan Corrie (1 hour)
11:00	<i>15 min break</i>	
11:15	<b>Agenda item 7. Tier 4 assessments</b> Presentation of data RBC recommendations Species: mirror dory, ocean perch, mixed oreo basket, ribaldo, silver trevally, royal red prawn, blue eye trevalla (slope)	Miriana Sporcic (3 hours)
12:30	LUNCH – 30 min break	
13:00	<i>Tier 4 assessments continued</i>	
14:45	<b>Agenda item 8. Hagfish research plan</b> Update declarations of interest Update – draft research plan Main findings of analysis Recommendation	Natalie Couchman (1 hour)
15:45	<b>Other business and action items review</b>	Chair (30 mins)
16:15	<i>Close of meeting</i>	



## Attachment C: action items review

### South East Resource Assessment Group (SERAG)

Complete/Redundant

Underway

Yet to start

Need further advice

Table 1 Progress of action items from previous meeting (SERAG#2.1 Nov 2020 – Note: This table has been added and was not considered at the December 2.1 meeting)

Meeting and Agenda Item	No.	Description	Responsibility	Timeframe	Status as of 19 February 2020
2020.11 Agenda Item 4	1	Dr. Miriana Sporcic (CSIRO) to produce standardised CPUE for John Dory for zones 10, 20 and if possible, zone 30 as a potential indicator of range shift. To be presented at SESSFRAG data meeting 2021.	CSIRO (Miriana Sporcic)	By SESSFRAG Data Meeting (Aug 2021)	
2020.11 Agenda Item 6	2	An agenda item is to be tabled at the time of the next assessment to discuss the implications of 100% overcatch/undercatch provisions for orange roughy and the scientific justifications underpinning these for SERAG#1 2021.	AFMA	By SERAG 1, 2020	

2020.11 Agenda Item 6	3	Replace part a) of action item 2020.10 from Agenda item 1.4 of SERAG#1 2020 with the following: AFMA to invite a representative from the Department of Agriculture, Water and Environment (DAWE) to SERAG#1 2021 to inform and discuss the process of delisting a conservation dependent species.	AFMA	By SERAG 1, 2021	Complete. Updated in table 2 below.
2020.11 Agenda Item 6	4	Dr. Paul Burch (CSIRO) and the orange roughy working group to produce a document outlining assessment options, including data requirements and metrics, for orange roughy stocks, with a view to demonstrating recovery.	CSIRO (Paul Burch)	By August 2021	
2020.11 Agenda Item 6	5	AFMA and CSIRO to confirm spatial reporting boundaries for orange roughy management areas.	AFMA and CSIRO	Complete.	
2020.11 Agenda Item 8	6	AFMA to identify a standard minimum set of stock assessment diagnostics and provide these (a) in the ARC feedback form for the 2021 pink ling stock assessment, and (b) as part of future research calls for stock assessments in the SESSF.	AFMA	To be provided to Patrick Cordue for the 2021 stock assessment. To be included in future calls for research.	The ARC were provided with general feedback from SERAG and Dr Codue will be provided with more specific requests for diagnostics once the research has been approved.
2020.11 Agenda Item 8	7	AFMA to include in the ARC feedback form for the 2021-22 blue grenadier acoustic data analysis (a) that the survey should follow a robust scientific design and proponents should engage with stock assessment scientists to ensure the data can be input into future stock assessments, and (b) that a milestone be	AFMA	Completed.	Complete.

			included to allow preparation for the 2022-23 survey.			
2020.11 Addendum 1	8	Daniel Corrie (AFMA) and Dr. Jemery Day (CSIRO) to determine suitable catch levels for school whiting catch projections for consideration at SERAG#2.2 2020.	AFMA and CSIRO	By SERAG 2.2 (2020)	Complete.	

**Table 2 Progress of action items from previous meeting (SERAG#1 Oct 2020)**

	<b>Meeting &amp; agenda item ref</b>	<b>No.</b>	<b>Description</b>	<b>Responsibility</b>	<b>Timeframe</b>	<b>Status update after SERAG #1 (2020)</b>
	2020.10 Agenda item 1.4	1	AFMA to invite a representative from the Department of Agriculture, Water and Environment (DAWE) to SERAG#1 2021 to inform and discuss the process of delisting a conservation dependent species.	AFMA (Dan Corrie)	By SESSFRAG or SERAG 2021	Yet to be started.

2020.10 Agenda item 2	2	Dr. Paul Burch (CSIRO) to undertake retrospective analysis on catch from 2016-2018 to determine the impact of the discard estimation error where the error resulted in a change of 5% or more in catch. Provide information discerning if this has impacted management advice and resultant RBCs and quotas for anglers.	CSIRO (Paul Burch)	As soon as practical	<b>This will be completed by end of Dec 2020 to assist the TAC setting process in early 2021.</b>
2020.10 Agenda item 2	3	AFMA to compare logbook discard records of deepwater flathead and bight redfish in the GABT against observer records to determine their accuracy.	AFMA	By SESSFRAG Data meeting (Aug 2021)	Not yet started
2020.10 Agenda item 3	4	Daniel Corrie (AFMA) to investigate the possible grading of school whiting catches at some ports which may be influencing the port-based size frequency distributions being input into the stock assessment. To be completed in time for SERAG 2.2.	AFMA (Dan Corrie)	By SERAG #2.2 (Dec 2020)	Refer to <b>Appendix A</b>  AFMA are seeking clarification of the issue.
2020.10 Agenda item 4	5	Natalie Couchman (AFMA) to seek contractor to analyse existing 5 years of hagfish logbook and observer data to help inform the design of the hagfish research plan. To be completed and presented at SERAG 2.	AFMA (Natalie Couchman)	By SERAG #2.2 (Nov 2020)	<b>The analyses are underway, to be presented at SERAG #2.2 (Dec 2020).</b>



	2020.10 Agenda item 5	6	AFMA and CSIRO to undertake a process of improving and validating historical catch time series to get accurate 'total' catch records for species across all jurisdictions. This will include a process of validating catch time series currently within CSIROs database which have been constructed from multiple sources (logbooks, CDRs, Neil Klaer spreadsheet), and via the sourcing of additional, verified data from State jurisdictions.	AFMA and CSIRO	By SESSFRAG Data meeting (Aug 2021)	Not yet started.
	2020.10 Agenda item 5	7	AFMA to facilitate greater cooperation and participation of State fishery representatives in future RAG meetings to improve data sharing and insights into fleet behaviour, gear configurations etc. This may be assisted by discussion at the Fisheries Statistics Working Group (a sub-committee of the Australian Fisheries Managers Forum). This action will occur outside of the 2020 assessment period.	AFMA	By SERAG 2021	Dan Corrie and Paul Burch attended the Fisheries Statistics Working Group Meeting and resolved: <ul style="list-style-type: none"> <li>- Paul Burch will liaise with the State agencies to facilitate provision of catch data, including potentially confidential data to be masked in reports.</li> <li>- Dan Corrie to liaise with the States and invite representatives to meetings where appropriate.</li> </ul>
	2020.10 Agenda item 5	9	AFMA and CSIRO to establish an approach for determining a reference period for the John dory Tier 4 assessment, with a particular focus on early State catches and the likely stock status for the selected reference period. To be completed for the SESSFRAG 2021 Data meeting and outcomes reported back to SERAG in 2021.	AFMA and CSIRO	By SESSFRAG Data meeting (2021)	This was discussed at SERAG #2.1 (Nov 2020), including a catch-MSY and surplus production model approach undertaken by Dr Haddon and Mr Penney in 2020. Dr. Sporcic was requested to explore differences in John dory standardised CPUE between ISMP zones 10, 20 and 30 as a potential indicator of range shift. Results to be presented at SESSFRAG data meeting 2021.

2020.10 Agenda item 5	10	Dr. Miriana Sporcic (CSIRO) to explore if the discrepancy in mirror dory west historical catch time series between logbook and CDR data is also present in mirror dory east in time for SERAG 2.	CSIRO (Miriana Sporcic)	By SERAG #2.2 (Dec 2020)	Update to be provided at SERAG #2.2 (Dec 2020). Item can be closed after the meeting.
2020.10 Agenda item 5	11	Daniel Corrie (AFMA) and Simon Boag to engage with industry regarding identification issues between oxeye and spikey oreo to improve logbook records	AFMA (Dan Corrie) and Simon Boag	As soon as practical	AFMA have had initial discussions with operators. AFMA and SETFIA will consider developing a Communications package to distribute to broader industry.
2020.10 Agenda item 5	13	Dr. Miriana Sporcic (CSIRO) to contact DPIPWE TAS to provide blue-eye trevalla catches from 2015 onwards in time for SERAG 2. DPIPWE will clarify the 2015 State-Tas catch estimate. In the absence of clarification from DPIPWE, by 6 November 2020, a zero catch will be used instead.	CSIRO (Miriana Sporcic)	By 6 Nov 2020	Completed.
2020.10 Agenda item 6	15	AFMA to undertake a risk assessment to explore the risk associated with increasing the smooth oreo (other) TAC to 135 t. This will occur outside of the 2020 assessment period.	AFMA	By SERAG 2021	Not yet started.
2020.10 Agenda item 8	17	AFMA to consider updating the SESSF Harvest Strategy to provide a process for setting TACs when a species is no longer within its initial MYTAC period and an assessment has not been completed. To be undertaken in time for SERAG 2021.	AFMA	By SERAG 2021	Not yet started. This has been included in a group of work for AFMA to coordinate – forwarded to Cate Coddington (SESSFrag EO).

	2020.10 Agenda item 8	18	Dr. Paul Burch, Dr. Geoff Tuck, Dr. Andre Punt, Dr. Malcolm Haddon and Nicholas Hill to produce a document that outlines a robust process (or range of potential processes) for estimating natural mortality for the 2021 eastern orange roughy stock assessment. This work is to be presented at SERAG 2.	CSIRO (Paul Burch, Geoff Tuck, Nick Hill et al.)	By SERAG #2.1 (Nov 2020)	Dr Burch provided a paper to SERAG 2.1 in November 2020. SERAG approved the approach and this will commence in 2021.
	2020.10 Agenda item 8	19	Lead stock assessor (Dr. Paul Burch, CSIRO) to develop a steering committee that will meet as required to help inform/guide the development of the 2021 eastern orange roughy stock assessment. Members: Daniel Corrie, Dan Hogan, Dr. Mike Steer, Dr. Geoff Tuck, Dr. Paul Burch, one independent scientific rep (Dr. Ian Knuckey and/or Mr. Andrew Penney), Dr. Andre Punt. This will be done when the stock assessment commences.	CSIRO (Paul Burch)	By early 2021.	Not yet started.
	2020.10 Agenda item 9	20	AFMA to update the western orange roughy research plan to include guidance on how the data collected under the program can be used to inform future management decisions – include likely timeframes and metrics.	AFMA	By May 2021.	Not yet started.

Table 3 Action items from all previous meetings that are outstanding

	Meeting & agenda item ref	No.	Description	Responsibility	Timeframe	Status update after SERAG #2 (2019)
	2019.12 Agenda item 2	1	AFMA and Simon Boag to investigate with industry to identify 'soft skinned shark' that is caught inside 300 metres, including species ID and whether it is part of the deepwater shark quota basket. If not part of the quota basket, then AFMA to ensure industry are not incorrectly recording it as part of the deepwater shark quota species in CDRs.	AFMA and Simon Boag	ASAP	AFMA and SETFIA are yet to confirm the species ID for 'soft skinned shark'. CSIRO will provide an overview of deepwater shark data to SESSFRAG in 2021, for the purpose up implementing a Tier 5 assessment in 2021. Currently, catches in water shallower than 300m are not included in the Tier 4, and so clarifying the species ID should not impact the outcomes of the assessment. Regardless, it is an issue for decrementing quota and needs to be resolved. <b>This has not been progressed.</b>
	2019.12 Agenda item 2	2	For each of the species in the DW shark basket, investigate catch at depth and provide data to Robin Thomson, including the CAAB codes for each species.	AFMA	Before the AFMA /CSIRO pre data transfer meeting (March 2020 TBC)	Data was provided to Robin Thomson in September 2020. This was scheduled to be will be discussed at SESSFRAG in 2021.
	2019.12 Agenda item 2	3	In addition to decision rules being considered by the discard working group, Paul Burch to consider the decision rules regarding application of Commonwealth discard rates to State fisheries catches with a particular focus on different gear types.	Paul Burch	SESSFRAG Chair's meeting	At its August 2020 data meeting, SESSFRAG established a working group to discuss application of Commonwealth discard rates to State gear types. An update will be provided to SERAG once this is resolved. <b>There will be no change for 2020.</b>

2019.12 Agenda item 8	5	<p>AFMA to finalise the Hagfish research plan for consideration by SEMAC at its February 2020 meeting. SERAG have requested additional information before the plan is taken to SEMAC, including a thorough analysis of:</p> <p>(1) the existing scientific literature,</p> <p>(2) the management arrangements in other jurisdictions, and</p> <p>(3) the current operator's logbook data from the preceding four years to better understand spatial extent of catches.</p>	AFMA	By SEMAC Feb 2020	<b>This was presented at SERAG #1 2020 and will be considered again at SERAG #2.2 (Dec 2020).</b>
2019.12 Agenda item 3	7	At its first meeting in 2021, SERAG to consider how to fix steepness (h) for Tiger Flathead, in preparation for the 2022 stock assessment.	AFMA	SERAG #1, 2021	Not yet started, will commence in 2021.
2019.12 Agenda item 7	8	AFMA to ensure the revised pre-1998 ISMP dataset is captured into the AFMA database and Dr Koopman's code corrections are stored and the old data rebadged appropriately.	AFMA	SERAG #1, 2020	This has been referred to John Garvey (AFMA) and is in progress. Note that data not included in 2020 transfer to CSIRO.
2019.12 Agenda item 9	11	AFMA to investigate and document the original justification for setting incidental TACs for all rebuilding species. This includes documenting the evidence base for showing where the bycatch TACs are currently set or historically set and providing to the RAG when setting bycatch TACs in future RAG meetings.	AFMA	SERAG #1, 2021	<p>AFMA will provide a response at SERAG #2.1 (orange roughly) in November 2020 and other species at SERAG #2.2 (Dec 2020).</p> <p>Item can be closed after 2020 meetings.</p>

	Meeting & agenda item ref	No.	Description	Responsibility	Timeframe	Status update after SERAG #2 (2019)
	2019.11 (Action items review)	1	Geoff Tuck to provide feedback from CAPAM workshop (Seattle, March 2020) to the SESSFRAG data meeting in August 2020, to inform discussions and the stock assessment for Orange Roughy, including issues around natural mortality and stock recruitment relationships.	Geoff Tuck, CSIRO	By Aug 2020 (SESSFRAG data meeting)	<p>Due to Covid, the workshop has been delayed until March 2021 and will be held online.</p> <p>An agenda item was included in the 2020 SERAG #1 meeting to discuss natural mortality for orange roughy. A workplan has been established.</p> <p><b>This work was covered under action item 18 (from SERAG #1 Oct 2020) and this item will be closed after this meeting.</b></p>
	2019.11 (Action items review)	2	AFMA to ensure that the SiDAC data collection includes total and partial lengths of school and gummy shark including school sharks larger than 160cm, and tissue samples of Blue-eye trevalla for CSIRO's close-kin work and for ageing: (a) Start collecting 20 samples from approximately 20% of the shots, and (b) The SSIA co-management contract needs to be finalised and this action item incorporated into the SiDAC Data Plan.	AFMA (Natalie Couchman)	As soon as possible	<p>SharkRAG to discuss ongoing collection of this data at their next meeting, scheduled for December 2020. AFMA has had discussions with the SiDAC Program and CSIRO concerning the collection of blue-eye trevalla tissue samples. AFMA is looking to source funding for this work, and notes that operational limitations caused by COVID may delay commencement. <b>Update to be provided after SharkRAG (Dec 2020).</b></p> <p>Partial and total lengths were collected during Automatic long line trial in Bass Strait and were used to inform the 2020 gummy shark stock assessment. SharkRAG will review the ongoing need for this data at a data workshop in Feb 2021, and build into SiDAC if required.</p>

2019.11 Agenda item 3	4	AFMA to investigate logbook records of catches of 'Black Trevally' (also called Black Snotty) from the last 2 years and verify with skippers whether species recorded on CDRs is Blue Warehou. If so, AFMA will correct data records and correct recording practices.	AFMA	By SERAG #2, Dec 2019	AFMA have confirmed the species is blue warehou. The skippers have been informed and will record future catches as blue warehou.  AFMA are yet to update the database – but will close this action item once done. <b>Keep this item open until records are corrected.</b>
2019.11 Agenda item 10.2	10	AFMA to investigate CDR data for redfish catches in the west - how it is reported as either Bight Redfish or redfish, and correct errors.	AFMA	By SERAG #2, Dec 2019	Since 2010, 97% of the catches in the west are recorded as eastern redfish. Observer data could be reviewed to determine if there is a mixing of the species in the western part of the CTS. <b>Keep item open until observer data has been reviewed.</b>
2019.11 Agenda item 10.1 <b>OUTCOME</b>		SERAG recommends a targeting analysis for blue warehou is completed as part of the March 2020 package to the Commission, to inform the TAC for the 2020/21 season.			Dr Burch presented a draft targeting and companion species analysis at SERAG #2 (2019), Agenda Item 11. SERAG requested to keep this item open.  An updated targeting analysis will be provided at SERAG #2, 2020 for all rebuilding species.  <b>Item can be closed after SERAG #2.2.</b>

2018.09 Agenda item 8	6	AFMA/Industry to clarify how observers have recorded discards of Silver Warehou on the factory boats (suggesting it was discarded but covered by quota, so should be in CDR records).	Dan Corrie	ASAP	AFMA have confirmed that all silver warehou are retained and processed as fish meal on the factory boats.  However, a discrepancy remains in the logbooks and CDRs. AFMA are following up (query sent to Licensing team 16/11/20).  <b>Item to remain open until completed.</b>
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## Attachment D: Actions arising from SERAG 2.2

Table 4 Actions arising from SERAG 2.2 Dec 2020

ACTION ITEM	Agenda Item Ref	Description	Responsibility	Timeframe
1	1	Dr. Paul Burch (CSIRO) and Daniel Corrie (AFMA) to table an item at the 'ISMP Tier 4 sampling targets working group' to consider sampling protocols for port-based sampling given observed differences between port-based and onboard length-frequency samples in school whiting. To be completed by January 2021.	Paul Burch and Dan Corrie	By January 2021
2	1	Action item 2 from SERAG 2019 meeting to be updated to incorporate the following. "Partial and total lengths were collected during Automatic long line trial in Bass Strait and were used to inform the 2020 gummy shark stock assessment. SharkRAG will review the ongoing need for this data at a data workshop in Feb 2021, and build into SIDAC if required."	AFMA	By February 2021
3	2	AFMA to investigate the peak of 24 cm fish in the 2018 trawl onboard length data for school whiting.	AFMA	Data meeting 2021
4	2	SESSFRAG to consider updating the 'TAC setting and assessment guidelines' document to include priorities for undertaking sensitivities, likelihood profiles, retrospectives etc. SESSFRAG 2021 Data meeting.	AFMA (refer to SESSFRAG)	By SESSFRAG Data Meeting (August 2021)
5	3	<p>Daniel Corrie (AFMA) and Dr. Michael Steer (Chair), to draft a letter to the AFMA Commission for its March 2021 meeting on behalf of SERAG (and to be endorsed by SERAG) expressing its concern around:</p> <ul style="list-style-type: none"> <li>- the difficulty of disentangling environmental changes, recruitment failure and fishing mortality as reasons for several depleted stocks failure to rebuild.</li> <li>- the increasing number of SESSF quota species assessed as declining.</li> </ul>	Mike Steer and Dan Corrie	By March 2021

ACTION ITEM	Agenda Item Ref	Description	Responsibility	Timeframe
6	3	As part of the Blue Warehouse Rebuilding Strategy review, AFMA to clarify the process and evidence (i.e. stock assessments or other indicators) used to inform the original rebuilding timeframes and bycatch TACs.	AFMA	As part of the rebuilding strategy review.
7	4	Dr. Miriana Sporcic (CSIRO) to explore available eastern gemfish CPUE standardisations in time for the August 2021 Data meeting.	Miriana Sporcic (CSIRO)	By SESSFRAG Data Meeting (August 2021)
8	4	AFMA/CSIRO to consult with Dr. Rich Little with regards to incorporating non-spawning gemfish CPUE as an alternative primary index abundance in the 2021 eastern gemfish stock assessment. Update to be provided to SERAG out of session.	AFMA and CSIRO	Data meeting 2021
9	6	Dr. Miriana Sporcic (CSIRO) to work in collaboration with Geoffrey Liggins (NSW DPI) to develop a preliminary historical catch time series for offshore ocean perch. It should be noted that the early-period catch history may require further validation before an agreed series can be reached.	Miriana Sporcic (CSIRO) and Geoff Liggins (NSW DPI)	Next Tier 4 assessment
10	6	AFMA to draft a paper detailing the evidence used to justify not applying default discount factors for Tier 4 species due to protection afforded by deepwater closures. To be completed in time for SERAG 2021.	AFMA	By SERAG 2021
11	6	AFMA to provide the evidence base for orca depredation being used to exclude the use of discount factors in blue-eye trevalla tier 4 stock assessments.	AFMA	Data meeting 2021
12	7	AFMA to distribute the paper for 'Agenda Item 8 – hagfish research plan' to all attendees at SERAG 2.2, including observers.	AFMA	As soon as possible

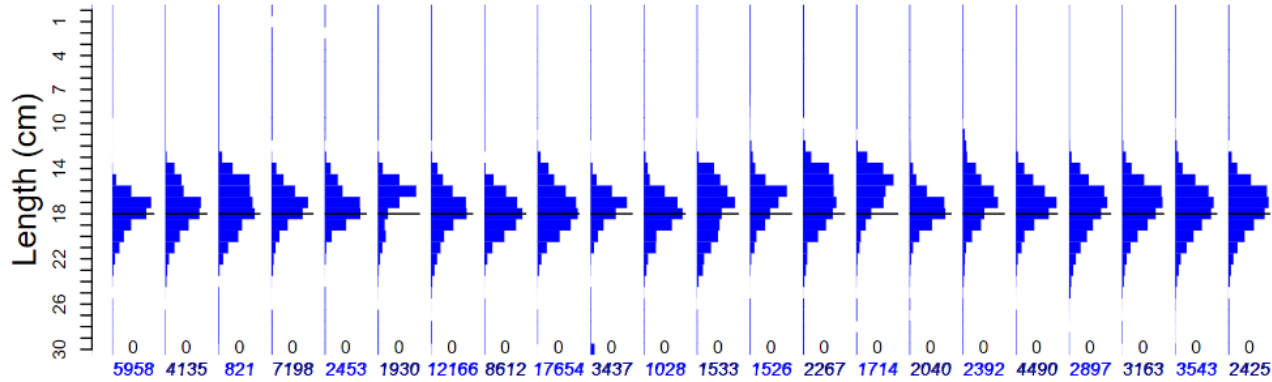
# Appendix A

Mon Aug 10 14:55:50 2020

## School Whiting

Length frequencies: ISMP Port, GAB Industry

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019



Length frequencies: ISMP Onboard, SET FIS winter, GAB FIS Industry

1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

