Australian Government
Australian Fisheries Management Authority

Southern and Eastern Scalefish and Shark Fishery Resource Assessment Group

(SESSFRAG)

Data Meeting

Meeting minutes

Date: 8 – 10 August 2018

Venue: Freycinet Room, CSIRO

Hobart

Attendees

Members	
Dr Cathy Dichmont	*SESSFRAG Chair*
Mr George Day	*AFMA Member*
Dr Sarah Jennings	*Economics Member*
Mr Lance Lloyd	*GABRAG Chair*
Mr Sandy Morison	*SERAG and SharkRAG Chair*
Invited Participants	
Mr Simon Boag	*Executive Officer, South East Trawl Fishing Industry Association (SETFIA) and Southern Shark Industry Alliance (SSIA)*
Dr Paul Burch	*CSIRO*
Dr Claudio Castillo-Jordan	*CSIRO*
Mr Daniel Corrie	*South East Trawl and Great Australian Bight Trawl Manager, AFMA*
Dr Jemery Day	*CSIRO*
Dr Malcolm Haddon	*Fisheries consultant*
Dr Ian Knuckey	*Fishwell Consulting*
Mr Kyne Krusic-Golub	*Fish Ageing Services*
Mr Brodie Macdonald	*Gillnet, Hook and Trap Manager, AFMA*
Mr Neil MacDonald	*Executive Officer, Great Australian Bight Industry Association (GABIA)*
Mr Andrew Penney	*Pisces Australis*
Dr Miriana Sporcic	*CSIRO*
Mr David Stone	*Executive Officer, Sustainable Shark Fishing Association (SSFA)*
Dr Robin Thomson	*CSIRO*
Dr Geoff Tuck	*CSIRO*
Observers	
Ms Mardi Albert	*AFMA*
Ms Sandra Curin	*CSIRO*
Dr Fay Helidoniotis	*Australian Bureau of Agricultural and Resource Economics (ABARES)*
Dr Simon Nicol	*ABARES*
Mr Phil Ravanello	*Observer manager, AFMA*
Dr Keith Sainsbury	*AFMA Commission*
Mr James Woodhams	*ABARES*
Executive officer	
Dr Giverny Rodgers	*AFMA*

1 Preliminaries

1.1 Welcome & apologies

1. The meeting commenced at 9am.

2. Dr Cathy Dichmont (SESSFRAG Chair) welcomed members and invited participants to the meeting. The Chair noted that no apologies had been received. Each of the participants introduced themselves to the rest of the group.

1.2 Declarations of interest

3. Members, invited participants and observers provided declarations of conflicts of interest as prescribed in Fisheries Administration Paper 12 and incorporated updates from the previous meeting as required **(Attachment 1)**.
4. Participants noted conflicts of interest with the following agenda items:
   - CSIRO members noted potential conflicts for agenda items 2.4, 2.5 and 4.1.
   - AFMA and ABARES noted no agenda items with a conflict of interest.
   - Mr David Stone noted potential conflicts for agenda items 2, 3, 6, 7 and 9.
   - Mr Simon Boag noted potential conflicts for agenda items 2, 3, 4, 6, 7 and 9.
   - Mr Neil MacDonald noted potential conflicts for agenda items 2, 3, 6 and 9.
   - Dr Kyne Krusic-Golub noted a potential conflict for agenda item 2.5.
   - Dr Ian Knuckey noted potential conflicts for agenda items 2 and 9.
5. Participants with specific conflicts of interest were asked to leave the room in turn so that the RAG could discuss their participation under specific agenda items.
6. Mr Boag volunteered to exclude himself from the recommendation relating to the orange roughy agenda item. The RAG supported this decision.
7. Mr Day noted sensitivities around CSIRO conducting the assessment on orange roughy which may be a potential interest. This potential conflict was noted by the RAG and CSIRO members and participants agreed that CSIRO would defer from making recommendations in relation to future work.
8. Excepting the above, the attendance of all members and invited participants was supported for each of the discussions and recommendations under each of the agenda items.

1.3 Adoption of Agenda

9. An additional item was added to agenda item 10.1: an update from the Shark Resource Assessment Group (SharkRAG) meeting held 6-7 August 2018 regarding school shark.
10. The RAG adopted the agenda **(Attachment 2)**.

1.4 Action Items

11. The RAG reviewed and commented on the status of the actions from previous meetings as detailed in **Attachment 3**. A list of new Action Items established at this meeting are listed in **Attachment 4**.

Action Item #2 (1.4 Data Meeting 2017)

12. Dr Knuckey advised he had completed an inventory of otoliths in Fishwell Consultings' possession and will make the list available to the RAG before the next meeting.

Action Item #1 (1.4 Chair's Meeting 2018)

13. The RAG suggested that, if it is not appropriate to upload the SESSF history of management events document to the AFMA website, then the document should be referenced and details provided on the website about how to access it.
14. The RAG also suggested that species summaries and CSIRO stock assessment summary compendiums should also be uploaded to the AFMA website.
15. Mr Penney recommended putting all documents that have been formally agreed to by the RAG on the AFMA website.

Action Item 1: AFMA

AFMA to upload the SESSF management history document, species summaries and CSIRO stock assessments on the AFMA website. If that is not possible because of accessibility concerns, AFMA to include a reference to the documents on the website including information on where those documents can be found.

Action Item #2 (1.4 Chair's Meeting 2018)

16. In relation to alfonsino data collection, Mr Morison suggested that it would be important to run an analysis to determine the appropriate otolith ageing target before the fishery starts up again. The RAG noted that the methodology would be generally applicable across species.

Action Item 2: Kyne Krusic-Golub (Fish Ageing Services) to the South East Resource Assessment Group (SERAG)

Mr Krusic-Golub to locate methods paper for running a simulation to develop ageing targets and discuss with CSIRO including the general method and the requirements for a single species (initially alfonsino).

Action Item #7 (3.1 Chair's Meeting 2018)

17. In relation to the proposed SESSF data needs workshop in February or March 2019, Mr Morison recommended that AFMA circulate background material, proposed approaches and proposed papers as early as possible to allow RAG member input.

18. A discussion of the documents that need to be prepared and circulated ahead of the SESSF data meeting was added to the agenda for discussion under item 10.1, 'other business'.

Action Item #10 (4.3 Chair's Meeting 2018)

19. In relation to research priorities, Mr Morison noted that the proposed project to agree and document SESSF species' catch history had not been prioritised in the annual research plan. He suggested that much of the information to inform this project would be recorded in past meeting minutes
20. Mr Boag noted that he had retained a number of documents from the previous SETFIA Executive Officer which would likely contain information relevant to catch history and could be made available to the project as relevant. The RAG discussed the importance of preserving these documents so they remained accessible.
21. Dr Sainsbury suggested that it would be beneficial to address the question of catch history conclusively and with documented procedures.

Action Item 3: Action for SERAG

SERAG to consider the priority given to the SESSF species catch history project when it prepared the 2020-21 annual research statement. This priority would be considered by SESSFRAG when it reviewed the 2020-21 annual research statement at its February / March 2019 meeting.

Action Item #13 (4.3 Chair's Meeting 2018)

22. The RAG discussed the potential demonstration of a new stock assessment modelling approach by PiSeas Pty Ltd. The RAG noted that a demonstration stock assessment by PiSeas on pink ling this year would conflict with the scheduled assessment being undertaken by ISL Solutions
23. Dr Day noted that, in addition to pink ling data, flathead data had been provided to PiSeas for the purposes of a demonstration but that had not been run.
24. Mr Boag noted potential conflict of interest in the room with those currently conducting the assessments. Dr Tuck noted that CSIRO have no issues with an alternative assessment being presented, however the assessment needs to be ready for peer review before being considered by the RAG.
25. The Chair suggested that when a complete demonstration of the product has been produced, it could be considered at the appropriate RAG (in the case of pink ling, SERAG). However, this should happen outside of the normal TAC setting process.
26. Dr Knuckey suggested that, more generally, a known dataset could be made publicly available for any future assessor to run as a demonstration of their approach.
27. Mr Tuck noted that when a contested assessment for Pink Ling was presented to SERAG in 2013, a process was developed for reviewing the assessment.

Action Item 4: AFMA, CSIRO and Dr Dichmont
AFMA to circulate the previously agreed process (see 2013) for introducing new assessments to the TAC setting process.

Dr Dichmont to work with CSIRO and AFMA to develop a protocol for how RAGs should assess proposals for new stock assessment methods in future.

Action Item 32.4 Applying discount factors

28. AFMA noted an Action Item from the South East Management Advisory Committee regarding the application of discount factors for Tier 3 assessments (5 per cent) and Tier 4 assessments (15 per cent). The MAC requested the relevant RAGs provide details of the spatial extent of closures to help the MAC determine whether discount factors should be waived (if there was sufficient protection provided by closures).
29. The RAG noted that the discount factors being applied should be revised in line with the project 'Operationalising risk-cost-catch tradeoff' (Dichmont *et al* 2017 FRDC 2012-202) and Management Strategy Evaluation (MSE) tested. The AFMA Manager noted the SESSF Tier structure and any applicable discount factors (buffers) would be reviewed following release of the revised *Commonwealth Fisheries Harvest Strategy Policy* (expected imminently). The AFMA Manager anticipated that this work could be incorporated into the proposed multi-species harvest strategy research project which is currently being considered for funding by FRDC. This would also mean the approach could be MSE tested.
30. Mr Morison noted that no advice had been agreed as to how discount factors should be applied (or not) when closures did provide a level of protection for stocks.
31. Dr Tuck noted the project 'Incorporating the effects of marine spatial closures in risk assessments and fisheries stock assessments' (Tuck *et al* 2018 FRDC 2011-032) evaluated the impact of closures on existing assessment methods and rules. The impact depended heavily on mixing rates and raised questions about whether the target should apply to the whole stock or just that part of the stock in open areas.

Action Item 5: CSIRO, Dr Geoff Tuck

Dr Tuck to present on 'Incorporating the effects of marine spatial closures in risk assessments and fisheries stock assessments' (Tuck *et al* 2018 FRDC 2011-032) at SESSFRAG's next meeting.

32. **SESSFRAG recommended that until Dr Tuck had presented his paper and SESSFRAG had given further consideration to how closures should be accounted for in assessments and harvest control rules, the fishery RAGs should continue making recommendations on discount factors using the existing approach as outlined in the Harvest Strategy Framework.**

1.5 SESSF management history document update

33. The RAG noted updates to species rebuilding strategies in 2015 to be included in the SESSF management history document.

2 Review of 2017 data

2.1 ISMP observer report for 2017

34. Mr Ravanello introduced the 2017 summary report for the Integrated Scientific Monitoring Program (Agenda item paper 2.1). He noted the following points:
    - Zone 10 has been generally under-collected, but this is intended to be improved via port sampling.
    - Five new observers have been recruited to improve sampling coverage.
    - Lengths have been generally collected well however otoliths have been subject to under-collection. Dr Krusic-Golub noted that this may be a reporting issue as Fish Ageing Services (FAS) currently holds a significant number of otoliths from last year (e.g. orange roughy).
    - For gillnet sampling there was some initial resistance from operators to start carrying observers again because the boats were also equipped with electronic monitoring.
    - Sea days were not distributed well across zones.
35. Dr Knuckey raised concerns that sea days are not being achieved on the east coast where the majority of the fishery occurs whilst other areas are currently being over sampled. The RAG expressed frustration with ongoing issues related to underachieving targets, particularly in key areas of the fishery.
36. The RAG noted a change in management of the observer section, leading to issues with achieving targets.
37. Mr Stone highlighted the importance of shark hook collection targets which had not been achieved. These data contribute size variation to the database not obtained via gillnet sampling.
38. The RAG acknowledged that within the next three months industry is due to take over biological sampling in the GHAT fishery.
39. AFMA noted that it would be updating the SESSF Data Plan during the meeting to ensure that data required for stock assessments are being collected, rather than just number of samples. Additional discussions with stock assessment scientists out of session may be required to complete the Data Plan.
40. The Chair noted that there should be some response initiated if data collection targets are continually not met. Mr Day stated that new staffing should help to resolve issues. Mr Boag suggested that more frequent reporting is required to better monitor and achieve targets.
41. Mr Morison raised that there could be significant flow on effects for assessments. Dr Thomson agreed and suggested that a review of the sampling design may need to occur as data collection is becoming poor and will create issues.
42. The RAG noted that AFMA has put on five additional observers and committed to quarterly reporting to the relevant RAG. A review of the Data Plan is also

underway to ensure that it contains more detail relating to specific sampling requirements.

43. The November observer report should include the first three quarters of 2018. To be presented at the next SERAG meeting.

Action Item 6: AFMA

AFMA to present its quarterly ISMP observer report against collection targets to the relevant RAG, including data for the first three quarters of 2018 at the first SERAG meeting in 2018 and then data for all 2018 at SESSFRAG in February or March 2019.

44. Mr Boag asked for summary percentages (average percentage collected) at the bottom of tables but limiting collection percentages to a maximum of 100% when calculating the average (i.e. not recognising overcollection).
45. Mr MacDonald questioned whether the additional observers hired by AFMA added costs to the levy base. Mr Ravanello confirmed that it does not, it just increases the available pool.
46. The RAG asked AFMA to note the importance of biological data collection, including the regional component.

2.2 Fish Ageing Services end of financial year report

47. Dr Krusic-Golub provided a summary of the Fish Ageing Services project for the past three years (Agenda item paper 2.2). He noted the following points:
    - Over 18 000 otolith/vertebrae samples were collected.
    - 13 696 age estimates were made.
    - There were some issues with under collection of otoliths in trawl, driven mostly by species not being caught, rather than under sampling.
    - Additional samples from 2008-09 in the shark fishery had been recovered and processed.
    - Gemfish and school whiting have not been aged as proposed due to budget constraints but are not due for assessment this year.
48. Calibration and re-age testing results were presented. No bias in ageing practices were found.
49. Dr Knuckey questioned a bimodal trend in length data for blue grenadier which was not reflected in the age data. The RAG considered this was a result of sampling process rather than species biology.
50. In relation to flathead, the RAG noted that several flathead species in the quota basket were being sampled. The RAG advised that, given the assessment was for tiger flathead, only this species should be sampled.

Action Item 7: AFMA observer section

AFMA observer section to ensure that observers collect biological samples from tiger flathead as required under the Data Plan.

2.3 Discard rate estimates

51. Agenda items 6.1 '*Explanation of discard weighting calculations'*, and 6.2 '*Calculating CVs*' were incorporated into agenda item 2.3.
52. Dr Burch presented 'Calculating CVs in the SESSF'. The RAG noted:
    - Automated discard calculations have now been applied back through the entire time series.
    - There was an error in the R code used for last year's discard report (2016 data) which caused slight changes to the mean discard estimated. This error has now been corrected for the 2017 data.
53. The RAG discussed whether CVs should be calculated for total catch (retained catch and discards) or just discards. The RAG noted the 2009 Bergh review of the ISMP design reported CVs for the total catch and that was what was presented to the RAG in 2016. The CV for the discarded component of the catch is always higher because the landed component is assumed to be known without error. For the 2017 data only one species has a CV for the estimated discarded catch <20%.
54. Dr Day noted that currently the total catch CVs were increased when used in Tier 1 assessments to allow better fits to the data.
55. The RAG noted that CVs on discards, as opposed to total catch, were what were used in Tier 1 assessments. The RAG was not aware of any reason for using total catch CVs for quota species. However, for non-quota species the ISMP data might be used to estimate total catch, and therefore the CV for this quantity would be relevant.
56. **Given that it is relatively simple to calculate both the CVs on discarded catch and the CV on total catch, the RAG recommended that both the total catch and discard CVs be calculated and presented in reports from 2019 onwards.**
57. Dr Knuckey noted that a large amount of effort by industry and researchers, supported by AFMA, is being put into reducing discards across fisheries. Further, non-quota species are now being incorporated in to the Harvest Strategy Policy for future management. As such, he suggested that total discards could be reported to allow measurement of the discard rate and to quantify reductions in discards over time.

Action Item 8: CSIRO and AFMA

CSIRO to ascertain possible methods for calculating total discards/discard rate for all quota and non-quota species and the associated variance on each. CSIRO and AFMA to discuss potential changes to the data management arrangements to allow this work to be undertaken.

58. The RAG noted that the 2009 review of the ISMP by Bergh *et al* was based on data from 2002-2008. Since that time there had been significant changes to the fishery and management including:
    - structural adjustment and a reduction in the number of concessions in the fishery
    - introduction of large fishery closures, particularly in the deep water and for upper slope dogfish

- an increase in the number of species groups for which discards are estimated, including the splitting of some species into East/West components
- the introduction of electronic monitoring in the GHAT which has led to a reduction in the total number of observer sea days.

59. These changes may have led to biased estimates of discard rates for species groups which have substantial components of catches from GHAT. This is because the fishery-wide discard rate is scaled to CDR data and when there is no sampling in one or more strata, estimates from the sampled strata are used.
60. Dr Burch noted that ISMP in the SESSF has now been operating for seven years since the 2009 Bergh review and it may be an appropriate time to reassess its effectiveness.
61. Dr Burch noted that more comprehensive sampling at reduced frequency could be considered for the SESSF (e.g. have no sampling at all in some years and more in other years. This might improve the data available for those years when particular species are targeted by samplers, without increasing overall cost.
62. The RAG considered whether the ISMP design should be reviewed now or if electronic monitoring and poor sampling complicated the issue and time is needed before the ISMP is reviewed. The RAG noted that it would make sense to review the available data before determining how to proceed.
63. Mr Boag questioned the importance of improving discard estimate data for stock assessment purposes. The RAG scientific participants confirmed that the estimated discards do have a significant impact on stock assessments for some species and are used for converting RBCs to TACs. Further, that they might soon become valuable for estimating catches of non-quota species as well as overall discards of all species caught.
64. The RAG supported a review of the overall performance of the ISMP.

Action Item 9: CSIRO, Dr Paul Burch

Dr Burch to provide an annual time-series of performance of ISMP against achievement of on board strata sampling. This will involve two components:

- how well the ISMP targets matched the effort in each strata (ie were the targets correctly set)
- how well ISMP sampling within each strata matched the targets for each strata- effectively a time series version of Table 1 in the ISMP discard report.

It was suggested that graphical representation of the data would be valuable.

65. Dr Burch noted that currently strata where only a single shot was observed for the species of interest were used in calculations to estimate a mean for the strata but that these could not contribute to the calculation of the CV – which is inconsistent use of the data.
66. **The RAG supported Dr Burch's suggestion to remove strata with only one sample for the relevant species from the data from 2019 onwards.**
67. Bergh et al (2009) assumed normally distributed data and used an arithmetic mean to estimate discards. Many fisheries data sources follow a log-normal distribution (e.g. Catch Per Unit of Effort (CPUE)) where geometric mean may be

more appropriate (arithmetic mean may over-estimate discards). Dr Burch noted there was now enough fishery data to look at the distribution and determine which is most appropriate.

68. Dr Thomson clarified that the arithmetic mean is as good as the geometric mean if the data have a symmetrical distribution, however if the data are not symmetrical then the geometric mean is more appropriate. If the data are symmetrical, there is no harm in using the geometric mean. Therefore, the geometric mean should generally be preferred.
69. **The RAG agreed that for next year's discard report both the arithmetic and geometric mean should be presented with a view to adopting geometric mean for 2018 data and future reports.**
70. Alternative methods to estimate discards were presented by Dr Burch who noted that a model-based approach such as using a model with a random effect for strata could provide discard estimates for strata with few or no observer sea days. Given the current sampling conditions in the SESSF, this may be better than the current approach which assumes all strata are sampled and applies discard rates from sampled strata to catches from strata with no observer sea days.
71. A model-based approach could potentially be developed to incorporate the use logbooks and electronic monitoring data to provide estimates of discards in the GHAT.
72. Mr Macdonald mentioned that other approaches are currently being considered for using electronic monitoring to estimate discards. Dr Knuckey suggested that e-logs may have improved discard reporting by industry and this data source may be sufficiently reliable to use in the future.
73. Mr Morison noted that data from vessels needed to be representative of the fishery and that e-logs will not give the level of detail provided by observers because of the grouping of non-quota species.
74. Dr Nicol noted that ABARES have looked at congruence between electronic monitoring and logbook data and could assist in the conversation around what data could be used for estimating discards.

Action Item 10: Simon Nicol

Dr Simon Nicol to distribute the recent ABARES report comparing electronic monitoring and logbooks to the RAG.

75. Dr Thomson questioned whether there were any time periods during which there was data from both observer coverage and electronic monitoring. Mr Day noted that there is approximately 6 months data in 2018 when electronic monitoring was operational and AFMA observers were re-introduced into the GHAT.

Action Item 11: AFMA

AFMA to examine data from any period where there is an overlap between observers and electronic monitoring to allow verification of logbooks by comparing data provided by skippers with that provided by observers (e.g. weights, species ID).

76. Mr Morison suggested that there could also be an investigation into observer effects and how this would bias the data. The Chair suggested that the other comparisons be investigated first and then an observer effect considered if deemed necessary.

77. **In reviewing the discard tonnages for each species, the RAG recommended that the discard quantum be checked for several species which seemed unusual given the current fishery. Dr Burch agreed to verify the data and present the result at Agenda Item 10.1. Dr Burch noted this work may highlight the need to review the validity criteria for accepting discard estimates and that the potential inaccuracy would likely be reflected in the high CVs.**

78. **The RAG agreed that the rules for accepting discard estimates should be reviewed, including consideration of adopting a rule based on CVs.**

79. Mr Penney pointed out that a species which has a small, variable number of discards may have a high CV that is correct. This creates a risk in adopting a CV rule in isolation.

80. The RAG agreed that the confirmation of the quantum of discards of several species including blue warehou be undertaken before validity rules for accepting discard estimates are finalised.

Action Item 12: Paul Burch, George Day, Robin Thomson

Dr Burch, Mr Day and Dr Thomson to meet and propose an additional validity rule for accepting discard estimates based on CVs. [This action item was completed in the meeting]

2.4 Multi-year TAC (MYTAC) analysis and data summary

MYTAC analysis

81. The RAG examined the available data on each species that required a review of fishery indicators and noted the following points:

Bight redfish

- Dr Knuckey raised concerns with this stock arising from the GAB Fishery Independent Survey (FIS):
    - a significant change in size distribution with fewer larger fish
    - a continuing decline in FIS catch rates.
- Industry noted that one vessel was not operating for a large part of 2017 as it was undergoing repairs, so indicating that it was possible some operational reasons were at play.
- **Given that the undercatch of bight redfish may be for non-operational reasons (as indicated by FIS catches), SESSFRAG recommended that GABRAG review the MYTAC at its next meeting, using information from**

various sources including from the GAB FIS, and advise on whether the next assessment should be brought forward to 2019.

Action Item 13: Ian Knuckey
Dr Knuckey to distribute the new GAB FIS report to GABRAG and SESSFRAG.

Action Item 14: GABRAG
GABRAG to review the bight redfish MYTAC at its next meeting and provide any advice to SESSFRAG on proposed changes to assessment timing, monitoring or management.

Deepwater flathead

- The RAG noted an increase in the number of old and big fish in recent years as a positive sign.
- The FIS has shown a consistent length/frequency distribution but declining catch rates for the last few FISs.
- CPUE from the fishery has been declining.
- One vessel was not operating for a large part of 2017 as it was undergoing repairs.
- Operators have reported that catches were not as high as expected last year however catches have since recovered.
- The RAG recognised that the assessment is scheduled for next year (2019) and, given the decline in CPUE, the assessment should proceed as scheduled.

Gemfish west

- Gemfish west was scheduled for assessment next year (2019) and advice from GABRAG was that a Tier 4 should be conducted for the Commonwealth Trawl Sector (CTS) component of the stock (zone 50).
- GABRAG advice was that catches in the GAB are low and not representative of the fishery. Accordingly, until catches in the GAB increase, an assessment on that part of the stock was unlikely to be possible due to a lack of data.
- Dr Haddon suggested that this species should be considered as a Tier 1 species for the CTS rather than a Tier 4 species because the CPUE is not a good indicator of catches. Dr Tuck noted that, if the CPUE is unreliable, similar issues may arise if using it as an index of abundance in a Tier 1 assessment.
- Even though only 35 per cent of the TAC had been caught, approximately the same amount had also been discarded and there were likely to be market factors driving this.
- **The RAG recommended continuing with the planned assessment in 2019. Mr Day suggested that assessment could be conducted by SERAG given the data were from the CTS component of stock and the resultant TAC would apply to the CTS. This could be considered by**

GABRAG and reviewed at the SESSFRAG Chairs meeting next year. This approach was supported by Mr Lloyd as Chair of GABRAG.

Action Item 15: GABRAG

GABRAG to consider moving the 2019 western gemfish assessment to SERAG and provide advice to SESSFRAG for consideration at its meeting in February or March 2019.

Gummy shark

- While a review of fishery indicators had not been triggered, given an assessment was planned for 2019, Mr Day suggested that the RAG consider the impact of poor data coverage on a potential assessment. Mr Boag agreed that the RAG should consider the usefulness of an assessment if necessary data is not available.
- The RAG noted issues with CPUE being calculated based on shot rather than net length, given the variety of net lengths now being used in the fishery. The RAG noted there was a research project to move CPUE from net shot to metre of net set which was important for incorporating into the next assessment, but this had not been finalised. Further, work was being undertaken to convert discard piece counts and lengths from electronic monitoring data to weights.
- **There are significant gaps in data collection for gummy shark and there are vertebrae samples awaiting processing. The RAG recommended that SharkRAG consider whether an assessment be run in 2019, noting there are no concerning trends in catch rates. SESSFRAG will consider the advice of SharkRAG at its Chairs meeting in February / March 2019.**

Action Item 16: SharkRAG

SharkRAG to consider deferring the gummy shark assessment until 2021 pending improved data.

Ribaldo

- The RAG noted that the TAC has increased significantly in recent years.
- Only 24 per cent of the TAC had been caught. AFMA noted advice from some industry members that this reflected the fact that the distribution of a large portion of the stock was covered by closures.
- The RAG agreed that the under-catch is likely to be primarily due to operational reasons and also because the TAC had increased.
- Dr Knuckey noted a trend in catches in recent years towards smaller fish.
- Given that this species was assessed last year and catch rates are constant, the RAG agreed that no action was required and it should be assessed in 2020 unless things changed.

Royal red prawn

- While a review of fishery indicators was not triggered, Dr Knuckey noted an issue with the units used in the database for this species.

Action Item 17: AFMA

AFMA to work with the data team to correct units in the AFMA database for length measurements. If cannot be corrected in database, AFMA to work with CSIRO to correct.

- Dr Day noted that CSIRO had identified a broader issue in the data where it appeared that the units recorded in the database for some species in some trips / years were incorrect (measured in cm but recorded as mm).

Action Item 18: CSIRO/Daniel Corrie

CSIRO to work with Daniel Corrie to develop a list of further species where unit issues appeared to be occurring. These are to be resolved in the database.

Sawshark

- A review of indicators was trigged because the TAC was only 42 per cent caught last season.
- Sawshark was assessed in 2017.
- Discards were estimated to be at 15 per cent and sawshark is a relatively low value species.
- CPUE is steady for both trawl and gillnet CPUE.
- The RAG agreed that no action was required at this stage.

School whiting

- The RAG noted the review was triggered because, when last assessed in 2017, the stock was just below the target reference point.
- Some operators have advised that they cannot obtain quota however the TAC is under-caught.
- Industry raised concerns about State catch levels. NSW is currently in the process of allocating quota for this species.
- **The RAG did not have concerns with the stock and recommended continuing with the MYTAC**.

Silver trevally

- The RAG noted that the review was triggered because the stock was below the target reference point when assessed last year.
- NSW DPI have classified this species as transitional depleting.
- CPUE remains relatively flat since 2012.
- The RAG agreed that at this stage no action is required.

- Mr Day noted that at some point a decision needs to be made about which jurisdiction is best placed to assess this stock in future and, given catches, it may be appropriate for NSW to undertake this work.

Day one of the meeting was closed at 17:10 pm.

The meeting re-commenced at 08:55 am.

82. Mr Morison pointed out that the application of the following two questions in the MYTAC decision tree support tool was not clear:
    - if less than 50 per cent of the TAC had been caught (unless this was because of operational reasons)
    - if the biomass was less than the target reference point.
83. Mr Day noted that the two were treated as separate questions, and if the answer was yes to either or both then a review of the fishery indicators should occur. The RAG agreed that for clarity the two questions should be split into separate boxes with a clear outcome attached.

Action Item 19: AFMA

AFMA to review the decision tree support tool for evaluating fishery indicators and to split the two questions (<50% TAC caught (other than due to operational reasons) and biomass < TRP) into separate boxes, each with a clear outcome attached.

84. The Chair raised concerns that the process for reviewing fishery indicators for species that were prioritised through the decision tree support tool could be more rigorous, particularly where there were conflicting indicators. Mr Morison stated that the usual response for a species of concern would be to bring forward an assessment. Further, because this may mean delaying the assessment for another species, there would need to be significant evidence to trigger the response.
85. Dr Sainsbury agreed that applying the decision tree to determine if a species should be reviewed assists in focusing RAG attention on species of potential concern. However, once a review is triggered, it would be beneficial to provide for more clarification around which fishery indicators should be considered and this is likely to be species specific depending on the assessment and available data.
86. The Chair suggested that a committee be formed to develop some interim guidelines for reviewing a MYTAC. Dr Tuck noted that given Tier 1 assessments adopted the Francis approach for weighting CPUE, this may provide a basis for developing the formalised guidelines. Dr Knuckey suggested that the group should also conduct the MYTAC review prior to the meeting in order to expedite the process and conduct a more thorough review. There was some concern that the role of the RAG would be de-valued under that option. The RAG agreed to first determine what the indicators would be and then to discuss the best process for reviewing them.

Action Item 20: Rich Little, Daniel Corrie, Cathy Dichmont, Ian Knuckey and Geoff Tuck

A small working group is to develop some key questions for each species that should be examined if a review of a MYTAC is triggered, noting that species specific information to be considered could be specified by the RAG at the time of assessment. This is to occur prior to the March SESSFRAG meeting for approval at the meeting.

2018 Assessment species

Blue grenadier (Tier 1)

87. The RAG noted the following:
    - The decrease in catches is largely due to freezer vessels not fishing over the past few seasons.
    - Increasing and then stable CPUE.
    - High discards in the non-spawning fishery which would indicate a large recruitment event.
    - Age data showing cohort progression but also a greater range of ages present for 2016-17, breaking away from the usual recruitment pattern. Dr Knuckey questioned if this age structure may be due to a sampling bias. Mr Boag stated that there have been reports from industry of large numbers of juvenile fish supporting suggestions of strong recruitment. Dr Knuckey reminded the RAG that there was a commitment to increase mesh size in the west in order to prevent mortality of recruits should a large recruitment event occur.

Action Item 21: Simon Boag

Mr Boag to provide information to SESSFRAG on the outcomes of the SETFIA gear survey, specifically the trawl codend size being used in areas with high potential discards of blue grenadier.

- The RAG noted that for the 2018 assessment there would be no updates to the acoustic index of abundance because the factory vessel which normally conducts the survey did not fish.
- Mr Boag reminded the RAG that the fishery is MSC certified.
- Dr Tuck noted that observer coverage needs to be improved for this species, particularly across the spawning fishery, but that sufficient biological data is available to proceed with the assessment this year.

Jackass morwong (Tier 1)

88. The RAG noted the following:
    - Dr Knuckey noted a change in depth of catches in the last year towards deeper waters.
    - Obtaining samples from the west has been an issue in the past, however sample sizes have increased.

EAST

- As previously identified by SESSFRAG, the issue of apparent misreporting of length data (mm vs. cm) was identified for this species. This should be corrected by the AFMA data section.
- Differences in age distributions in 2017 are likely to be a product of sampling across only a few months where high volumes of young fish are typically caught. The RAG expressed concerns that this could significantly affect the assessment outputs although part of the problem was low catches at particular times of the year.
- Dr Day suggested that if the RAG decides that the data is not sufficient for a Tier 1 assessment, that a Tier 2 may have been possible however this Tier was no longer recognised in the SESSF Harvest Strategy Framework.
- Mr Morison noted that overall the data appears sufficient to conduct the assessment. Mr Day agreed that where sampling was low, catches were also generally low.

WEST

- Under sampled areas were primarily due to low fishing in those areas.
- The number of age samples was low for western Tasmania.

ASSESSMENT

- Dr Haddon suggested running the assessment both with and without the data for which issues had been identified.
- **The RAG recommended that despite being uncomfortable with the representativeness of some of the data that the Tier 1 assessment should progress for both zones**.
- The RAG suggested that, in the sample distribution 'traffic light' charts within the data summary, CSIRO remove colour from squares that have low catches. Only squares with high catches and low samples would remain red which would focus the RAG's attention.

Action Item 22: CSIRO

CSIRO to review the sample distribution 'traffic light' charts within the data summary to remove colour from squares that have low catches and only leave squares that have at a least a relatively moderate level of catch and low samples red to indicate a lack of representativeness and focus for future data collection.

89. Dr Tuck questioned whether the RAG wanted to review fleet specific structured data that was an input to the assessments. Dr Knuckey stated that the data would be useful, however Mr Morison questioned whether it would make a difference to the decisions made by the RAG.
90. The RAG agreed that the information would be useful for the Tier 1 species given that was what was used in assessments. The RAG considered that the additional information should be included in the data summary to inform discussion as to whether sufficient data were available to undertake assessments.
91. Mr Morison questioned the process of the RAG considering each assessment species. It may be more useful for the RAG to consider only species for which CSIRO requires RAG advice on specific issues. The Chair questioned whether a small group should review the data thoroughly prior to the Data Meeting to

provide this advice. This aim would be to make more efficient use of member and participant time and also to facilitate more strategic discussion by the RAG.

92. Dr Tuck questioned whether this would be possible in terms of timing and allowing stock assessment scientists sufficient time to prepare the data. Dr Jennings suggested that the group meet on the first day of the data meeting.

Action Item 23: AFMA and Cathy Dichmont

Dr Dichmont and AFMA to work on a procedure for pre-processing of stock assessment data prior to the SESSF Data meeting and providing highlights and recommendations to the RAG.

93. The RAG noted that under this process the RAG will still see all data prior to the meeting and have the ability to override the recommendations of the small group. The RAG can then recommend areas to improve the data and advise on whether the assessment will go ahead or not.

Pink ling (Tier 1)

94. The RAG noted the following:

EAST

- A spike in discards occurred for 2016 (20%). The RAG questioned whether this was accurate and noted Dr Burch was reviewing this question as raised in the earlier discussions regarding the discard report. However, the RAG did note the CVs were very high (60%).
- Mr Boag noted that 2016-17 and 2017-18 are expected to have lower discards due to changes to pink ling management - discards should have reduced after May 2016.
- Age samples were not presented (east and west) as processing is currently being completed. Dr Krusic-Golub provided a verbal update.
- The RAG had no concerns with length or age coverage. The exception was port length samples for which coverage was not representative.
- Catch rates are relatively stable.
- **The RAG noted no additional concerns about the available data when compared to the data available for the last assessment and recommended proceeding with the 2018 Tier 1 assessment for the eastern stock**.

WEST

- Catch rates showed an increasing trend. Mr Boag noted that this is contrary to industry reports.
- On board length sampling was good.
- Port length sampling was lacking in west Tasmania. However, this may be a product of where the fish are being landed. On-board samples are being collected for this area.
- Age sampling was lower than for the east however still likely to be sufficient for the assessment.
- **The RAG recommended proceeding with the assessment for the western stock**.

School shark (Tier 1)

95. The RAG noted the following:
    - Mr Morison and Dr Thomson provided an update on the discussion at SharkRAG held 6-7 August 2018.
    - The close kin project identified good numbers of close kin pairs. The data provided enough information to estimate population size.
    - The close kin assessment is showing an upwards trend in abundance, although the confidence interval on trend is likely to be quite wide. The current timeframe for rebuilding outlined in the School Shark Rebuilding Strategy is three generations (66 years), however the rebuilding timeframe will be reviewed with the review of the Strategy.
    - The population estimate was substantially less than the most recent stock assessment. It is likely however that an assessment model would compensate for lower biomass by estimating higher productivity.
    - SharkRAG advice was to continue to develop the close kin model, rather than attempting to update the old stock assessment model which relied on numerous untested assumptions. Close kin, landed catch, trawl CPUE (as a sensitivity) and length frequency data will be incorporated into the close kin model.
    - An improved estimate of current population size, fishing mortality and productivity are expected to be produced via the model.
    - An increase in the level of incidental bycatch should be expected as school shark rebuilds, however there is currently no allowance made for this in management.
    - Dr Thomson and Dr Bravington are working on providing updated instructions for sampling to allow the continuation of close kin abundance estimation. Any changes to the required sampling will be captured in the Data Plan.
    - The RAG noted there will be a new assessment for school shark developed for next year and supported the outcomes of the SharkRAG workshop.
    - Dr Sainsbury noted that it would be valuable to prepare a summary document explaining the assessment approach for wider distribution to stakeholders. This should be presented at an intermediate level, explaining the approach in a way that would be understood by engaged stakeholders.

Action Item 24: Brodie Macdonald/AFMA via SharkRAG

AFMA to produce an intermediate level summary of the school shark close kin project for consideration by SharkRAG before distribution to stakeholders.

Silver warehou (Tier 1)

96. The RAG noted the following:
    - A lower productivity model was adopted for this species in the last assessment.
    - Discards are highly variable however this is typical for silver warehou.
    - There is a large spread in the length data.

- Ages show a much high number of younger fish, although this may be driven by sampling.
- Port length sampling in west Tasmania is lacking. However, length sampling in this zone is being achieved through on-board sampling.
- **Generally speaking data coverage was good. The RAG recommended proceeding with the assessment**.
- Dr Knuckey suggested that in future some measure of the level of fishing efficiency should be included in the assessment, as was recommended in the declining indicators project workshop.

Alfonsino (Tier 3)

97. The RAG noted the assessment has been pushed back to 2019 due to low catches and a lack of data.

John dory (Tier 3)

98. The RAG noted the following:
    - SERAG considered the 2017 Tier 3 assessment would be suitable for setting a three year MYTAC. However, given conflicting age and CPUE data, the RAG noted that the Tier 3 assessment would likely produce a less precautionary TAC than the Tier 4.
    - Given the relevance to the discussion, Dr Haddon suggested bringing forward discussion on the Agenda Item on data poor assessment approaches (Agenda Item 5.1). The agenda was re-arranged and Dr Haddon delivered his presentation (see discussion under 5.1).
    - Following Dr Haddon's presentation, the Chair summarised the options available for assessing John dory as: Tier 3, Tier 4, surplus production model (SPM), catch Maximum Sustainable Yield (MSY) or an age production model.
    - Dr Tuck questioned the reason for not conducting a Tier 4 assessment given the CPUE series. Dr Thomson noted that for this species CPUE does not appear to do a good job of indexing abundance. Catches are consistently low for this species.
    - The Chair noted that, if different approaches are applied, with different assumptions behind them, significantly different results are produced. As such it would be useful to examine multiple data sources and use multiple models to aid in interpretation.
    - The Chair questioned the stage at which the stock is deemed not assessable. Dr Knuckey stated that poor data for a number of species means that representative data is not being collected to continue to conduct assessments. The Chair questioned whether collecting more data would assist in future assessments. Dr Nicol suggested that if the catch is so small that sufficient age data is not being collected then perhaps that indicates that the species is not considered important enough, and catches are not significant enough, to warrant an assessment. Dr Burch suggested that it may be worth collecting otoliths, even if they aren't aged, so that ageing can be done in the future if catches increase and an assessment is required.

- Dr Knuckey raised concerns that environmental factors are not being given enough consideration in assessments.
- The Chair suggested that as john dory appeared to be a declining species, a Tier 4 assessment could be undertaken for the next assessment and it may be appropriate to collect further data including ages for future, more informative, assessments. Catch MSY and CPUE can then be compared and the most appropriate model chosen by looking at recent age structure to understand if the species is rebuilding.
- Mr Morison expressed concern that collection of additional age data may not necessarily provide an answer given that the issue appeared to be conflict between the ageing data and CPUE.
- The Chair noted the RAG had identified a group of currently un-assessable species because of a lack of available data (e.g. smooth oreos), high discards (e.g. elephant fish and inshore ocean perch) and conflicting data (e.g. john dory).
- Mr Morison suggested that the RAG should consider the process for setting a TAC where an assessment cannot be run.
- Dr Sainsbury suggested it would be appropriate to characterise the different issues making these species un-assessable, consider what additional data would be useful and advise on whether decision rules should be revised, including how to set a TAC if an accepted assessment was not available. It may also be useful to relook at the process for determining whether a regime shift had occurred including determining surplus production over time as an indicator

Action Item 25: AFMA/CSIRO/RAG Chairs

Scoping document to be developed by AFMA, RAG Chairs and assessment scientists for un-assessable groups of species characterising the different issues, how they can be addressed and the species to be included. Categories could include species with discards greater than 50%, data deficient species, species where data conflicts (age vs. CPUE) or declining stocks. The working group should consider:

- Guidance on when to reject an assessment?
- What rules can be implemented when the assessment is uninformative?
- What are the criteria for what evidence is needed to determine regime shift and/or where climate change is playing a major role in stock status.

The group should aim to provide guidance to RAGs for assessing and managing these species in the short term. Working group to present at February/March SESSFRAG meeting.

- In the medium term, approaches to deal with these species should be considered as part of the proposed multi-species harvest strategy project.

Blue eye trevalla (Tier 4)

99. The RAG noted the following:

- The blue eye trevalla workshop was held on 13-14 March 2018. It identified three likely stocks, a seamount stock and possibly two slope stocks. **It was recommended that slope stocks as a whole be assessed as Tier 4 and the proportion of catch and CPUE be monitored between the likely two stocks for evidence of localised depletion in the GAB component. It was not possible to do a Tier 4 assessment for the seamount stock given the available data but a Tier 5 assessment was recommended**.
- A close kin research project proposal is being developed by CSIRO to scope a possible future close kin project for blue eye trevalla.
- SESSFRAG supported the recommendation from the blue eye trevalla workshop.

Deepwater shark east (Tier 4)

100. The RAG noted the following:
    - A Tier 4 assessment was done last year however questions were raised about the robustness of the assessment given the impact of large closures in the fishery.
    - A comparison of catch rates including and excluding catch from closed areas produced very little difference in standardised CPUE. A similar trend occurred in the west.
    - Scientific members recommended that catch in the target period (C_{Targ}) uses catch from open areas only in the 2018 assessment.

Deepwater shark west (Tier 4)

101. See above.

Mirror dory (Tier 4)

102. The RAG noted the following:
    - The species is on a single year TAC, set based on the cyclical nature of availability of the species.
    - The RAG had no issues with the CPUE index.
    - **The RAG recommended progressing the assessment**.

Elephant fish (Tier 4)

103. The RAG noted the following:
    - Given the high level of discards of this species, it is in the group of currently un-assessable species to be considered by the working group before the SESSFRAG Chairs meeting in February /March 2019.

Oreo smooth other (Tier 5)

104. The RAG noted the following:
    - A Tier 5 depletion based stock reduction analysis (DBSRA) was used to assess the stock when last assessed three years ago.

- A CPUE index was produced however this is not an appropriate index of abundance because the fishery had been closed to allow orange roughy to rebuild and the assessment couldn't make sense of the large change in catches.
- When last assessed, in 2015 SERAG advised that the DBSRA assessment was uncertain but conservative. However, scientific participants advised that this stock should not be assessed using DBSRA.
- Mr Penney suggested that the TAC be set at some low level until such a time as the stock increases or data availability improves.
- Dr Haddon suggested that this is a companion species issue and that care should be taken not to constrain catches of orange roughy. There is currently no indication that catches are having a significant effect on the oreo stock.
- A lack of data, rather than conflicting data, is the primary issue for this species.
- Dr Sainsbury raised the alternative approach of using a conservative catch indicator rather than an assessment in order to set a TAC. Dr Haddon suggested that a catch MSY assessment could be preferable as it could better describe the uncertainty. However, Dr Haddon noted this method would struggle to deal with a drop in catches due to management or operational changes.
- Dr Nicol suggested that the RAG could be reasonably confident that the stock is not depleted, however it was not currently possible to set a quantifiable limit. For this reason, it may be appropriate to set a limit based on unavoidable bycatch.
- The Chair suggested that this species falls into the un-assessable group to be considered by the working group recommended under Action Item 25.
- **The RAG recommended extending the MYTAC by one year while the assessment is considered by the working group. Catch limits need to be mindful of the species' role as a companion species to orange roughy**.

Blue eye trevalla (Tier 5)

105. See above.

Elephant fish (Tier 5)

106. See above.

2.5 Recommended changes to ISMP & SESSF Data Plan

107. AFMA introduced the draft SESSF Data Plan. Targets are typically updated following the presentation of stock assessments at the SERAG meeting.
108. Updates to the assessment schedule have been made based on the discussion at this meeting (Attachment 5).
109. A more detailed Data Plan will be developed for the SESSF Fishery Management Strategy which contains further detail on how data is collected – i.e. in relation to spatial and temporal distribution of sampling.

110. Dr Knuckey questioned whether it would be better to collect a larger amount of age data on selected years and not on other years. The RAG noted a project has been proposed in the past to assess the effect that this would have on assessments.
111. The RAG did not have any further changes to the Data Plan. Noting that there is a strong need to ensure that data collection targets are being met.
112. Mr Corrie asked the RAG to confirm the number of otoliths required to be collected for orange roughy – RAG advice was to stay with 1000 otoliths from the ISMP with 600 obtained from the AOS spread across the three months in years when the survey occurs.

3 Approaches for using likelihood profiles in assessments

3.1 SESSFRAG to provide advice on when likelihood profiles should be used in assessments

113. Dr Day presented on the agenda item.
114. Likelihood profiles have been used by the RAG in the past and have not been particularly controversial (examples were provided for silver warehou, school whiting and orange roughy).
115. Likelihood profiles are used to examine fixed parameters but may still be run to investigate estimated parameters.
116. The RAG agreed that running likelihood profiles was relatively standard process and agreed with CSIRO's recommendation that likelihood profiles for all Tier 1 assessments should be presented to the first RAG meetings.
117. The RAG was asked to advise on whether it is better to take the *M* that responds to the minimum of the total likelihood or to accept a previously agreed value if that falls within the 95% confidence interval from a likelihood profile. The RAG advised that the weight of probability is at the minimum and therefore the *M* that corresponds to the minimum of the likelihood should be used.
118. However, Andre Punt had provided a recommendation that, as long as the constant is within the 95% interval of the likelihood profile, then there is no support in the data to change the fixed value.
119. Dr Haddon highlighted the importance of considering the management implications of variability in the value of *M*.
120. Dr Tuck noted that CSIRO have agreed with AFMA that all likelihood profiles will be made available before the first RAG before adoption of the base case assessment.

Action Item 26: CSIRO

CSIRO to approach Andre Punt to potentially update or further clarify his advice paper regarding what should be done if a likelihood value falls outside of the 95% confidence interval.

4 Orange roughy eastern advice for 2019-20

4.1 Overview of the 2017 assessment process & timing for future acoustic optical survey (AOS)

121. Mr Corrie asked for RAG advice on the assessment process and timing of a future AOS for orange roughy east, noting that an AOS survey has been proposed for 2019. He suggested collecting biological data during the AOS survey rather than via the ISMP as a way of freeing up resources. Dr Haddon noted that smaller samples are taken via the AOS (difference in size selectivity) and that the survey may not be temporally representative of the fishing season. Some of the samples should be taken from the commercial vessels.
122. Dr Krusic-Golub noted that most of the ageing used in the assessment is from samples collected during the AOS. If the AOS does not happen then the assessment would need to include ages from otolith samples collected by the ISMP during commercial fishing.
123. Dr Knuckey suggested that undertaking additional surveys may not be as high a priority as investigating values for *M*.
124. Mr Morison proposed that tracking the population over time using AOS would assist in better estimating whether higher or lower values of *M* were more likely to be correct. However, there was high survey variability and an AOS in 2019 is likely to be too early to inform this determination.
125. The RAG discussed the implications of *M* estimates with regards to species biology and what would be considered reasonable (i.e. maximum age).
126. The ageing sample on which biological calculations of *M* are conducted will influence the result but will be limited by the availability of the data.
127. **The RAG recommended that this year's SERAG should review *M* but not review the assessment, which would take more time**.
128. **The RAG recommended conducting the AOS in 2019 and updating assessment for 2020.**

Action Item 27: SERAG

SERAG to consider the following matters at its next meeting for the purposes of TAC setting for the second and third year of a three year MYTAC in 2019-20 and 2020-21:

a. SETFIA's proposal to limit TAC of orange roughy; and
b. an exploration of alternative methods to estimate *M*, taking into consideration life history parameters etc.
c. an exploration of the sensitivity of the existing assessment to future catches and fixed values of natural mortality. This would provide a risk assessment to understand the impacts of higher catches being included in the lower productivity model.

An AOS to be run in 2019 and SERAG to consider further work required to estimate biological parameters as part of the 2020 assessment.

5 Data poor assessments

5.1 Update on the data poor assessment project

129. Dr Haddon presented the agenda item:

- The main objectives of the data poor assessment project were:
    i. Arrange a training workshop on data-poor methods in seven jurisdictions.
    ii. Ensure scientists conducting Status of Australian Fish Stocks (SAFS) assessments can use data-poor assessment methods to develop defensible stock status reports.
- Species may be data-limited for many reasons:
    i. New – no or short time series of information.
    ii. Inattention/Neglect – management lags the exploitation.
    iii. Low value – data collection uneconomic.
    iv. Multi-gear, multi-species, small operators, many landing sites – monitoring difficult and expensive.
    v. Spatially structured – representative data difficult to obtain.
    vi. Data-quality poor/variable – high levels of IUU or discarding.
    vii. By-product – poorly monitored if at all.
- Stock Status is usually determined relative to reference point(s), but:
    i. Empirical Harvest Control Rules (HCR) for Tier 4 have a target and a limit – can be used to determine status (uses a proxy).
    ii. Model-Assisted data-limited methods can estimate productivity and generate outputs akin to a highly uncertain Tier 1.
- Guidance is needed on how to develop an HCR for status. Could use the standard Tier 1 HCR, but there are issues with how to deal with the high uncertainty.
- Methods of assessment from data poorest to richest:
    i. Catch-MSY (cMSY) time-series of catches and a ‘resilience’ (very-low, low, medium, high). Catch-MSY produces a result but variability is large and the method should be considered a method of last resort. The method also assumes that the conditions in the fishery have remained constant and that changes in catches are the main drivers in the dynamics.
    ii. Surplus Production Modelling (SPM) time-series of catches and an index of relative abundance (catch & CPUE).
    iii. Age-Structured SPM (ASPM)
        - time-series of catches and an index of relative abundance (catch & CPUE)
        - biological information, weight-, maturity, selectivity-at-age, steepness, natural mortality (best estimates)
    iv. Catch-Curves – auxiliary information
        - One or more samples of age-composition and ideally length-composition for use with age-length key.

- Data-poor methods cannot be run automatically and require careful consideration of assessment limitations. High uncertainty implies many more sensitivity runs which require significant time.

130. The reference period used for some Tier 4 species may be overestimating biomass. Species such as John Dory are unlikely to be driven by catches.
131. Mr Penney noted that the alternative models suggested rely on an input of resilience. The resilience entered can have a significant effect on model outputs.
132. The Chair noted that often running multiple methods aids with the interpretation of the chosen method.

Day two of the meeting was closed 06:10 pm.

6 Discards

6.1 Validity rules for accepting discard estimates

133. As raised in agenda item 2.3, Mr Day and Dr Knuckey presented options for incorporating CVs into validity rules for accepting discard estimates. The rules were derived from the first ISMP design (1997):

Table 16 Target CVs for four sampling intensities

Option	Quota species % discard rates			Other species
	<5	5-20	>20	
High	1.0	0.6	0.4	1.0
Medium - high	1.5	0.8	0.4	1.5
Medium - low	1.5	1.0	0.5	1.5
Low	2.0	1.5	0.8	2.0

134. The Chair noted the fundamental issue of small sample sizes making it close to impossible to obtain good CVs.

Action Item 28: CSIRO and AFMA

A CV validity rule to be added to the package of changes to discard calculations for next year. There should be a discussion between CSIRO and AFMA to add additional time in the contract to consider these issues properly.

6.2 Calculating CVs

135. See agenda item 2.3.

6.3 Dealing with high discards in Tier 4 assessments

136. The issue of dealing with high discards in Tier 4 assessments originally arose due to elephant fish and inshore ocean perch. After the last meeting a small working group went away to try and deal with the issue, attempting to address the question of what happens when you have a Tier 4 assessment where the species has a very high discard rate (>50%).

137. Dr Thomson noted the further issue whereby the Commonwealth discard rate is being applied to state catches although the state discarding is unlikely to be comparable to the Commonwealth. Mr Boag noted that in terms of inshore ocean perch, he doesn't believe that state fisheries are landing significant quantities of this species.

Action Item 29: CSIRO

CSIRO to examine ocean perch state data to determine whether the assumption that all catches were of inshore ocean perch, can be improved.

138. As raised at the last SESSFRAG meeting, Dr Knuckey suggested that adding the discarded kilograms to each shot before summing across strata/turning to a proportion may assist in preventing providing large proportion of discards to a small weight. Dr Thomson agreed that converting to a proportion as late as possible is best however could not see how it could be converted any later than it currently is.
139. Dr Haddon specified that when standardisation is done it is done shot by shot for landed catch and discards are added after. Dr Knuckey and Mr Morison suggested adding the discard rate at a record level in the standardisation. This assumes that a discard rate is spread homogeneously across a strata or requires subdivision of discard rate by shot by strata, which involves a significant amount of work. Dr Thomson suggested that the second option would also result in errors being multiplied up through a strata.
140. The Chair asked if the conclusion is that a Tier 4 cannot be applied under a high discard situation. Dr Haddon agreed, if the proportion of discards is greater than 0.5 a Tier 4 should not be applied.
141. Dr Knuckey pointed out that this was a mathematical issue, from a fisheries perspective CPUE for stocks with high discards would still provide a valid index of abundance provided the discards were accurately estimated.
142. Dr Penney clarified that if discards are constant this problem does not occur, there is only an issue where there is a change in the discard rate.
143. The Chair suggested that there are two options for the RAG to decide between:
    - accept that there is no solution and eliminate the Tier 4 for species with discards greater than 0.5; or
    - ask CSIRO to look at the problem again now that there has been some further discussion/clarification of the problem.
144. Dr Haddon clarified that the task would be coming up with a way of getting discard by shot by strata and then subdividing the catch rate data into each of the strata by year in an automated process. Dr Sainsbury noted that the data is scattered and the more that you subdivide spatially the worse the error will get.
145. **The RAG recommended that for elephant fish the TAC could be extended for one year and the species included with those un-assessable species to be examined by the working group as described above**.
146. The Chair suggested development of rules for setting a TAC where the Tier 4 is not informative.

Action Item 30: Un-assessable species working group

The working group considering un-assessable species to consider advice around dealing with Tier 4 species with high discards.

7 Ocean perch

7.1 Alternative harvest controls for inshore ocean perch

147. Mr Day introduced the agenda item advising that AFMA will be seeking RAG advice on appropriate mechanisms to assess this species in light of the stock regionalisation project. Given time constraints, Mr Day proposed seeking advice from SERAG initially and reviewing the outcomes at SESSFRAG next year.

7.2 Species reporting and incorporation into stock assessments

148. Mr Day noted that several operators were now reporting ocean perch at a species level and this was not picked up in Tier 4 due to species coding.
149. The RAG noted that more specificity in reporting was positive, and that these data will need to be picked up in next assessment.
150. Dr Knuckey noted that data punchers from AFMA made assumptions when entering from paper logs and those decisions are now being made by individual skippers under e-logs.
151. The RAG noted the need to look at changes in species coding associated with the move to e-logs.

8 Fish reproductive energy output

8.1 Modelling fish reproductive energy output with body size

152. This agenda item was not addressed due to time constraints.

9 Update on Harvest Strategy Review (SMARP, FIS implementation, electronic monitoring, observers, multi-species MEY)

9.1 SMARP implementation update

153. This agenda item was not addressed due to time constraints.

9.2 Harvest Strategy amendments

154. This agenda item was not addressed due to time constraints.

10 Other business and close of meeting

10.1 Any other business and setting of a date for next data meeting

Checking Discard Calculations – Dr Paul Burch

155. Dr Burch was asked to check the discarded catch estimates for blue warehou east, deepwater shark east, blue grenadier and orange roughy in 2017 and the estimate for pink ling east in 2016.

156. For blue warehou the RAG noted:
    - Mr Boag noted that for seiners, catch is all small and it is likely that all catch would be discarded.
    - No error was found in discard calculations. Industry members were generally comfortable with the calculations; the level of discarding is driven by Danish seiners in Lakes Entrance.

Action Item 31: CSIRO

CSIRO to include hit rate (proportion of ISMP shots catching that species group) within the discard report for 2019 and graphically present the information on observed discards.

157. For deepwater shark the RAG noted:
    - A small rounding error was found in the discard calculations which will be corrected in future but it was not significant enough to impact the assessment this year.
    - Mr Boag questioned species identification, potentially whether green eye spurdog are being incorrectly identified by observers as operators are unlikely to discard this species.
    - The RAG noted there were only a couple of shots being scaled up which was resulting in a high CV.

Action Item 32: AFMA

AFMA to review observer reports for deepwater shark size and ID to verify that correct species are being recorded.

    - The data may include a scaling issue whereby additional vessels are being included that were fishing within the stratum but are not targeting deepwater shark. The calculation method attempts to deal with this issue by looking at the percentage of vessels that caught deepwater shark within a strata. This method could be improved by including a depth stratum.

158. For blue grenadier the RAG noted:
    - Again there was a small rounding error found that will be corrected in future but it was not significant enough to influence the assessment this year.
    - The RAG was happy with the calculation.
    - For orange roughy east the RAG was happy with the calculation.

159. For pink ling east the RAG noted:

- Mean discards per shot by month and strata was calculated, as well as the number of observed shots.
- Normal distribution assumptions failed, problems were driven by a number of very high discard events- one or two operators with one or two very high discard events were driving the trend.
- There was a low sampling size and a problem with stratification in the method.
- If sampling species with an east and western split, or where species are rarely encountered, the discard estimation would require either an increased sample size or the RAG would need to accept the higher variation.

160. Dr Knuckey suggested applying the geometric mean to discard calculations this year because there was risk in continuing to apply the arithmetic mean. The Chair warned that there is a potential that, if the distribution is not normally distributed, this could fundamentally change the numbers for discard rates. The RAG agreed that, because of the potentially large consequences of the change, the calculation will be made for next year when it can be given appropriate consideration by SESSFRAG.
161. Dr Burch expressed a preference for removing strata with only one observation this year. The RAG agreed that all changes should be made in a single package in 2019.

Codend sizes used by western trawlers for blue grenadier – Mr Simon Boag

162. Mr Boag updated the RAG on his assigned Action Item to 'report back to the group prior to the end of the meeting on the gear survey conducted by SETFIA regarding what gear is being used in areas where blue grenadier was abundant (Action Item 21).
163. He noted that current gear use in the western part of the fishery:
    - 1 boat – 93 mm codend
    - 3 boats – 95 mm codend
    - 6 boats – greater than 100mm
164. Dr Knuckey noted his view based on previous research that generally there would be benefits of moving to a larger mesh size across a range of species.
165. Mr Boag has written a case for consideration at the next SETFIA meeting regarding increasing mesh size.
166. Mr Day noted that AFMA currently has a research proposal to look at gear and discards in the SET and the GAB.
167. **The RAG recommended that this issue be considered by AFMA and SEMAC as soon as possible to avoid a large number of small fish being caught**.

Next meeting

168. The next SESSFRAG meeting will be held in February or March 2019.
169. A poll will be sent out to members and invited participants to confirm exact dates.
170. The meeting will involve a review of SESSF data needs and how they are achieved. Documents needed will be distributed out of session and include:
    - CSIRO FIS review

- Dr Knuckey's FIS review
- SMARP update
- Declining indicators workshop information/summary
- AFMA SESSF data plan

171. Mr Day thanked Dr Haddon for his contribution to the RAG and the SESSF over many years.
172. The Chair thanked all contributors to the meeting.
173. The chair closed the 2018 SESSFRAG Data meeting on Friday 10 August at 11:15am.

Action Item 33: AFMA

AFMA to coordinate Data meeting and ensure that the following documents will be provided:

- CSIRO FIS review
- Dr Knuckey's FIS review
- SMARP update
- Declining indicators workshop information/summary
- AFMA SESSF data plan

Attachments

1) List of declared conflicts of interest
2) Final adopted agenda
3) Status of previous Action Items
4) New Action Items as of end of meeting
5) SESSF Assessment Schedule

Attachment 1

Declared Conflicts of Interest

Member	Declared Interest
Dr Cathy Dichmont	Proprietor of Cathy Dichmont Consulting. Chair of TT RAG. Leads two FRDC funded cross cutting projects with some links to SESSF. Contracted by various State and Commonwealth agencies to undertake various reviews and consultancies not related to SESSF. No pecuniary interest in the SESSF.
Mr George Day	Employed by AFMA; Senior Manager of Demersal and Midwater Fisheries. No interest, pecuniary or otherwise.
Mr Lance Lloyd	GABRAG Chair. Member of GABMAC and SESSFRAG. Director; Lloyd Environmental Pty Ltd. Honorary Research Fellow; Federation University Australia. No pecuniary interest in the SESSF.
Mr Sandy Morison	Director of Morison Aquatic Sciences. Chair of SharkRAG, SERAG and the Tropical Rock Lobster Working Group. Scientific member on SEMAC. Contracted by government departments, non-government agencies and companies for a range of fishery related matters including research and (by SCS Global Services) for MSC assessments of AFMA managed and other Australian and international fisheries. No pecuniary or other interest in the SESSF.
Dr Sarah Jennings	Economics member on SERAG. Economics coordinator, FRDC Social Science and Economics Research Program. Member of AFMA Economics Working Group. Independent economics consultant. No pecuniary or other interest.
Dr Giverny Rodgers	AFMA, Ag/Executive Officer for SESSF RAG, GAB RAG and GAB MAC. No interest, pecuniary or otherwise.
Invited Participant	**Declared Interest**
Mr Simon Boag	Executive Officer South East Trawl Fishing Industry Association (SETFIA). Non-beneficiary Director of two fishing companies in the SESSF. Member Victorian Fisheries Advisory Council. Industry member on SERAG. SETFIA receives funding from various bodies to complete projects. Involved in the delivery of industry training courses through East Gippsland TAFE. Undertakes contracts as an independent consultant. On the Commonwealth Fisheries Association Board.

Mr David Stone	Executive Officer of Sustainable Shark Fishing Incorporated.
Mr Neil MacDonald	Executive officer of the Great Australian Bight Industry Association. Executive officer of Surveyed Charter Boat Owners and Operators Association South Australia. Executive officer of Southern Fishermen's Association. Executive officer of Saint Vincent Gulf Prawn Boat Owner's Association. Executive officer of South Australian Blue Crab Pot Fishers Association. Executive officer of Marine Scale Net Fishers Association. Director NMAC(SA) P/L.
Dr Geoff Tuck	CSIRO. Involved in Stock assessments. Interest in obtaining funding for future research. Principle investigator on the SESSF stock assessment project and marine closures project.
Dr Jemery Day	CSIRO stock assessment scientist. Acquiring funding for research purposes.
Dr Miriana Sporcic	CSIRO stock assessment scientist. Acquiring funding for research purposes.
Dr Robin Thomson	CSIRO stock assessment scientist. Acquiring funding for research purposes. PI on data services contract and close kin project for school shark.
Dr Malcolm Haddon	CSIRO stock assessment scientist. Acquiring funding for research purposes. Member of GABRAG, Northern Prawn RAG, sub-Antarctic RAG and sub-Antarctic MAC.
Dr Simon Nicol	ABARES. Interest in obtaining funding for future research. No pecuniary interest.
Mr James Woodhams	ABARES. Interest in obtaining funding for future research. No pecuniary interest.
Mr Andrew Penney	Sole Director of Pisces Australis Pty Ltd, an Australian registered marine and coastal research and management consultancy based in Canberra - interest in any opportunities in this regard. Principal Investigator on FRDC Project No 2014-009: Development of guidelines for quality assurance of Australian fisheries research and science information, and co-investigator on FRDC Project No 2014-203: SESSF Monitoring and Assessment – Strategic Review. Member of the AFMA ERA Technical Working Group. No shareholding and hold no positions relating to any other companies, including any fishing companies or industry associations.
Dr Ian Knuckey	Director Fishwell Consulting Pty Ltd. Involved in Fishery Independent Survey (FIS) for SESSF and GAB. Range of research interests in relation to South East fisheries including the GABTF, SESSF and auto-longline sector. Agent for Olfish Electronic Logbooks. NPF RAG Chair, Scientific member on NORMAC, Member on Scallop MAC and Squid MAC.

	Provides research advice to various industry associations: SETFIA, GABIA and SSIA.
Mr Kyne Krusic-Golub	Director at Fish Ageing Services.
Mr Daniel Corrie	AFMA, Trawl Manager, Coral Sea Fishery Manager. No interest, pecuniary or otherwise.
Mr Brodie Macdonald	AFMA, Gillnet, Hook and Trap Manager. No interest, pecuniary or otherwise.
Mr Phil Ravanello	AFMA, Observer and Bycatch Manager. No interest, pecuniary or otherwise.

Adopted Agenda

Date	Times	Venue
08 August 2018	09:00am – 05:00pm	CSIRO Hobart – Freycinet Room
09 August 2018	09:00am – 05:00pm	CSIRO Hobart – Freycinet Room
10 August 2018	09:00am – 11:00am	CSIRO Hobart – Freycinet Room

DAY ONE				
Agenda Item	**Description**	**Presenter**	**Purpose**	**Allocated Time**
1	***Preliminaries***			***09:00am – 10:30am***
1.1	**Welcome and apologies**	**Chair**	**For noting**	**90 min**
1.2	**Declarations of interest**	**Chair**	**For noting**	
1.3	**Adoption of agenda**	**Chair**	**For noting**	
1.4	**Action Items**	**EO/Chair**	**For information**	
1.5	**SESSF History Document update**	**EO/Chair**	**For information**	
Morning tea (10:30-10:45am)				
2	***Review of 2017 data***			***10:45am – 05:00pm***
2.1	**ISMP report for 2017**	**AFMA**	**For information**	**30 min**
The AFMA Observer Coordinator will present on the Integrated Scientific Monitoring Program for 2017.				
2.2	**End of financial year report – Fish Ageing Services**	**Kyne Krusic-Golub (FAS)**	**For information**	**30 min**
Fish Ageing Services will present the End of Financial Year Report.				
2.3	**Discard rate estimates update**	**CSIRO**	**For information**	**45 min**
CSIRO will present the SESSF ISMP discard report				
Lunch (12:30-1:00pm)				
2.4	**MYTAC analysis and data summary**	**CSIRO/AFMA**	**For recommendation**	**4.5 hours**
The RAG is invited to accept the list of MYTAC species that were determined as requiring further evaluation using the breakout decision tree as a priority. All other Tier 1, 3, 4 and 5 species scheduled for assessment in 2018 will then examined in the data summary. The RAG may decide on additional species that require examination under the data summary.				
Afternoon tea (3:00-3:15pm)				

2.4	**MYTAC analysis and data summary (cont.)**	**CSIRO/AFMA**	**For recommendation**	

The RAG is invited to accept the list of MYTAC species that were determined as requiring further evaluation using the breakout decision tree as a priority. All other Tier 1, 3, 4 and 5 species scheduled for assessment in 2018 will then examined in the data summary. The RAG may decide on additional species that require examination under the data summary.

End day 1 (05:00 pm)

DAY TWO

Agenda Item	Description	Presenter	Purpose	Allocated Time
2	***Review of 2017 data (cont)***			***09:00am – 10:45am***
2.4	**MYTAC analysis and data summary (cont.)**	**CSIRO/AFMA**	**For recommendation**	

The RAG is invited to accept the list of MYTAC species that were determined as requiring further evaluation using the breakout decision tree as a priority. All other Tier 1, 3, 4 and 5 species scheduled for assessment in 2018 will then examined in the data summary. The RAG may decide on additional species that require examination under the data summary.

2.5	**Recommended changes to ISMP and SESSF data plan**	**AFMA**	**For recommendation**	**60 min**

Based on the information provided in Agenda Items 2.1 – 2.4, the RAG is invited to provide supplementary information, ask questions and provide comments or recommend any changes to ISMP targets and data collection requirements (SESSF Data Plan).
Include discussion of onboard instead of port sampling for cascade orange roughy and clarification on the number of male and female samples required (to assist with issues relating to the mixed sex assessment model).
Any changes and updates will be documented in the SESSF Data Plan species appendices.
Update assessment schedule.
Discussion on the scheduling of assessments and associated workloads.

Morning tea (10:45-11:00am)

3	***Approaches for using likelihood profiles in assessments***			***11:00am – 11:45am***
3.1	**SESSFRAG to provide advice on when likelihood profiles should be used in assessments**	**AFMA/CSIRO (George Day and Geoff Tuck)**	**For recommendation**	**45 mins**

Likelihood profiles have been used in the SESSF in some assessments such as bight redfish and orange roughy.

4	***Orange roughy eastern advice for 2019-20***				***11:45am – 12:30pm***
	4.1	**Overview of the 2017 assessment process & timing for future acoustic optical survey (AOS)**	**AFMA (Daniel Corrie)**	**For Advice**	**45 min**
	Overview of AFMA Commission recommendations regarding the 2017 Tier 1 assessment, further work for the 2019-20 TAC setting and timing of future AOS.				
	Lunch (12:30-13:00pm)				
5	***Data Poor Assessments***				***01:00pm – 01:30pm***
	5.1	**Update on the data poor assessment project.**	**Malcolm Haddon**	**For information**	**30 min**
	Malcolm to inform SESSFRAG on the results of the data poor assessment project. Consideration of the application of a Tier 5 assessment for some byproduct species and/or current Tier 3/4 species.				
6	***Discards***				***01:30pm – 03:30pm***
	6.1	**Explanation of discard weighting calculations**	**Robin Thomson**	**For information**	**30 min**
	CSIRO to present on discard weighting calculations and any changes to the approach.				
	6.2	**Calculating CVs**	**Paul Burch**	**For discussion**	**30 min**
	Dr Thomson to examine the two approaches for calculating CV's in the Mike Bergh design and discern which one is more appropriate for future discard estimate calculations.				
	Afternoon tea (02:30-02:45pm)				
	6.3	**Dealing with high discards in Tier 4 assessments**	**Robin Thomson, Malcolm Haddon and Ian Knuckey**	**For discussion**	**60 min**
	Dr Thomson, Dr Haddon and Dr Knuckey to present a proposed solution or a series of options for overcoming the effect that discards of >50% have on the discard multiplier and how Tier 4 assessments should deal with large discards more generally.				
7	***Ocean perch***				***03:45pm – 04:30pm***
	7.1	**Alternative harvest controls for inshore ocean perch**	**AFMA**	**For recommendation**	**30 min**
	Discussion on possible alternative harvest controls for inshore ocean perch if they were to be removed from the quota basket.				
	7.2	**Species reporting and incorporation into stock assessments**	**AFMA**	**For information**	**15 min**
	AFMA will provide an update on changes in how industry are reporting ocean perch when and what impact this has had on stock assessments.				

8	***Fish reproductive energy output***			***04:30pm – 05:00pm***
8.1	**Modeling fish reproductive energy output with body size**	**AFMA**	**For discussion**	**30 min**
Discussion on new Science paper 'Fish reproductive-energy output increases disproportionately with body size' and possible implications or improvements to SESSF stock assessments.				
End day 2 (05:00 pm)				
DAY THREE				
Agenda Item	**Description**	**Presenter**	**Purpose**	**Allocated Time**
9	***Update on Harvest Strategy review (SMARP, FIS implementation, Electronic monitoring, Observers, Multi-species MEY)***			***09:00am – 10:45am***
9.1	**SMARP implementation update**	**AFMA (Daniel Corrie)**	**For information**	**90 min**
Overview of the SMARP implementation plan including expected dates and how the deliverables relate to other projects including outcomes of the undercaught TAC project and the multi-species harvest strategy developments.				
9.2	**Harvest Strategy amendments**	**AFMA**	**For information**	**15 min**
Possible future amendments to the SESSF Harvest Strategy including western gemfish triggers, gummy shark TAC calculations, and use of discards in assessments.				
10	***Other business and close of meeting***			***10:45am – 11:00am***
10.1	**Any other business and setting of a date for data needs meeting.**	**Chair**	**For discussion**	**15 min**
- Close of Meeting -				

Status of Previous Action Items

Complete/Redundant	Underway	Need SESSF RAG advice	Not yet started

Prev No.	Agenda Item/Meeting Date	Action Item	Agency/Person	Timeframe	Progress as of Data Meeting 2018
9	3.2 Chairs Meeting 2017	AFMA to look at potential management responses depending on the different scenarios if the school shark assessment results are accepted as being above the limit reference point.	AFMA	as soon as practicable	To be considered in December 2018 when SharkRAG is presented with the school shark stock assessment. (delivery date changed to tie in with stock assessment)
2	1.4 2017 Data meeting	Dr Knuckey to provide an inventory of all otolith samples in Fishwell Consulting's possession and to the stock assessment people (the relevant RAGs). Each RAG is then to decide if the data and samples are required to be transferred to Fish Ageing Services to be archived and potentially processed if to be used in future stock assessments.	Ian Knuckey	As soon as practicable	Dr Knuckey has completed an inventory of otoliths in Fishwell Consultings' possession and will make the list available to the RAG before the next meeting.
2	1.4 2018 Chairs meeting	AFMA to contact Kyne for advice on the cost and amount of work involved in running a new simulation to obtain a current target for Alfonsino with new age estimate data. Also to determine if there are any additional reasons for running the simulation not considered by the RAG.	AFMA, Kyne Krusic-Golub (Fish Ageing Services)	As soon as practicable	Redundant – superseded by Action Item 2 – SESSFRAG 2018 Data meeting (see attachment 4)

7	3.1 2018 Chairs meeting	A meeting to be held in February 2019 to re-asses data collection in the SESSF and review the Fishery Independent Survey (FIS), electronic monitoring and observers in South East Trawl, Gillnet, Hook and Trap and Great Australian Bight Trawl.	AFMA	February 2019	Redundant – superseded by Action Item 33 – SESSFRAG 2018 Data meeting (see attachment 4)
9	4.3 2018 Chairs meeting	AFMA to coordinate via the RAGs to produce a description of the blue eye trevalla fishery history, including recreational catch, black market etc.	AFMA	As soon as practicable	A draft description is being prepared for presentation to the RAG.
10	4.3 2018 Chairs meeting	AFMA to work with assessors to update catch history within the SESSF catch history spreadsheet with information for tier 1 species.	AFMA	As soon as practicable	Redundant – superseded by Action Item 3 – SESSFRAG 2018 Data meeting (see attachment 4)

Attachment 4

New Action Items as of end of meeting

Table 1 Actions arising from SESSFRAG Data meeting 2018

	Agenda Item/Meeting Date	Action Item	Agency/Person	Timeframe
1	1.4 SESSFRAG Data 2018	AFMA to upload the SESSF management history document, species summaries and CSIRO stock assessments on the AFMA website. If that is not possible because of accessibility concerns, AFMA to include a reference to the documents on the website including information on where those documents can be found.	AFMA	As soon as possible
2	1.4 SESSFRAG Data 2018	Mr Krusic-Golub to locate methods paper for running a simulation to develop ageing targets and discuss with CSIRO including the general method and the requirements for a single species (initially alfonsino).	Kyne Krusic-Golub (Fish Ageing Services) to the South East Resource Assessment Group (SERAG)	SERAG 2 2018
3	1.4 SESSFRAG Data 2018	SERAG to consider the priority given to the SESSF species catch history project when it prepared the 2020-21 annual research statement. This priority would be considered by SESSFRAG when it reviewed the 2020-21 annual research statement at its February / March 2019 meeting.	SERAG	SERAG 2 2018
4	1.4 SESSFRAG Data 2018	AFMA to circulate the previously agreed process (see 2013) for introducing new assessments to the TAC setting process. Dr Dichmont to work with CSIRO and AFMA to develop a protocol for how RAGs should assess proposals for new stock assessment methods in future.	AFMA / Cathy Dichmont / CSIRO	As soon as practical

5	1.4 SESSFRAG Data 2018	Dr Tuck to present on 'Incorporating the effects of marine spatial closures in risk assessments and fisheries stock assessments' (Tuck *et al* 2018 FRDC 2011-032) at SESSFRAG's next meeting.	CSIRO, Dr Geoff Tuck	SESSFRAG Feb/Mar 20198
6	2.1 SESSFRAG Data 2018	AFMA to present its quarterly ISMP observer report against collection targets to the relevant RAG, including data for the first three quarters of 2018 at the first SERAG meeting in 2018 and then data for all 2018 at SESSFRAG in February or March 2019.	AFMA	SERAG 1 2018
7	2.2 SESSFRAG Data 2018	AFMA observer section to ensure that observers collect biological samples from tiger flathead as required under the Data Plan.	AFMA observer section	Immediately
8	2.3 SESSFRAG Data 2018	CSIRO to ascertain possible methods for calculating total discards/discard rate for all quota and non-quota species and the associated variance on each. CSIRO and AFMA to discuss potential changes to the data management arrangements to allow this work to be undertaken.	CSIRO/AFMA	As soon as practical
9	2.3 SESSFRAG Data 2018	Dr Burch to provide an annual time-series of performance of ISMP against achievement of on board strata sampling. This will involve two components: • how well the ISMP targets matched the effort in each strata (ie were the targets correctly set) • how well ISMP sampling within each strata matched the targets for each strata- effectively a time series version of Table 1 in the ISMP discard report. It was suggested that graphical representation of the data would be valuable.	CSIRO, Dr Paul Burch	SESSFRAG Data Meeting 2019
10	2.3 SESSFRAG Data 2018	Dr Simon Nicol to distribute the recent ABARES report comparing electronic monitoring and logbooks to the RAG.	Simon Nicol	As soon as practical
11	2.3 SESSFRAG Data 2018	AFMA to examine data from any period where there is an overlap between observers and electronic monitoring to allow verification of	AFMA / Brodie	As soon as practical

		logbooks by comparing data provided by skippers with that provided by observers (e.g. weights, species ID).		
12	2.3 SESSFRAG Data 2018	Dr Burch, Mr Day and Dr Thomson to meet and propose an additional validity rule for accepting discard estimates based on CVs.	Paul Burch, George Day, Robin Thomson	Complete (in meeting)
13	2.4 SESSFRAG Data 2018	Dr Knuckey to distribute the new GAB FIS report to GABRAG and SESSFRAG.	Ian Knuckey	Complete (in meeting)
14	2.4 SESSFRAG Data 2018	GABRAG to review the bight redfish MYTAC at its next meeting and provide any advice to SESSFRAG on proposed changes to assessment timing, monitoring or management.	GABRAG	GABRAG 2018
15	2.4 SESSFRAG Data 2018	GABRAG to consider moving the 2019 western gemfish assessment to SERAG and provide advice to SESSFRAG for consideration at its meeting in February or March 2019.	GABRAG	GABRAG 2018
16	2.4 SESSFRAG Data 2018	SharkRAG to consider deferring the gummy shark assessment until 2021 pending improved data.	SharkRAG	SharkRAG 2 2018
17	2.4 SESSFRAG Data 2018	AFMA to work with the data team to correct units in the AFMA database for length measurements. If cannot be corrected in database, AFMA to work with CSIRO to correct.	AFMA	As soon as possible
18	2.4 SESSFRAG Data 2018	CSIRO to work with Daniel Corrie to develop a list of further species where unit issues appeared to be occurring. These are to be resolved in the database.	CSIRO/Dan Corrie	As soon as possible
19	1.4 SESSFRAG Data 2018	AFMA to review the decision tree support tool for evaluating fishery indicators and to split the two questions (<50% TAC caught (other than due to operational reasons) and biomass < TRP) into separate boxes, each with a clear outcome attached.	AFMA	SESSFRAG Chairs 2019
20	2.4 SESSFRAG Data 2018	A small working group is to develop some key questions for each species that should be examined if a review of a MYTAC is triggered, noting that species specific information to be considered could be specified by the RAG at the time of assessment. This is to	Rich Little, Daniel Corrie, Cathy Dichmont, Ian Knuckey and Geoff Tuck	SESSFRAG Chairs 2019

		occur prior to the March SESSFRAG meeting for approval at the meeting.		
21	2.4 SESSFRAG Data 2018	Mr Boag to provide information to SESSFRAG on the outcomes of the SETFIA gear survey, specifically the trawl codend size being used in areas with high potential discards of blue grenadier.	Simon Boag	Complete in meeting
22	2.4 SESSFRAG Data 2018	CSIRO to review the sample distribution 'traffic light' charts within the data summary to remove colour from squares that have low catches and only leave squares that have at a least a relatively moderate level of catch and low samples red to indicate a lack of representativeness and focus for future data collection.	CSIRO	SESSFRAG Data 2019
23	2.4 SESSFRAG Data 2018	Dr Dichmont and AFMA to work on a procedure for pre-processing of stock assessment data prior to the SESSF Data meeting and providing highlights and recommendations to the RAG.	Cathy Dichmont/AFMA	SESSFRAG Data 2019
24	2.4 SESSFRAG Data 2018	AFMA to produce an intermediate level summary of the school shark close kin project for consideration by SharkRAG before distribution to stakeholders.	Brodie Macdonald/AFMA via SharkRAG	SharkRAG 4 2018
25	2.4 SESSFRAG Data 2018	Scoping document to be developed by AFMA, RAG Chairs and assessment scientists for un-assessable groups of species characterising the different issues, how they can be addressed and the species to be included. Categories could include species with discards greater than 50%, data deficient species, species where data conflicts (age vs. CPUE) or declining stocks. The working group should consider: • Guidance on when to reject an assessment? • What rules can be implemented when the assessment is uninformative? • What are the criteria for what evidence is needed to determine regime shift and/or where climate change is playing a major role in stock status.	AFMA/CSIRO/RAG Chairs	SESSFRAG Chairs 2019

		The group should aim to provide guidance to RAGs for assessing and managing these species in the short term. Working group to present at February/March SESSFRAG meeting.		
26	3.1 SESSFRAG Data 2018	CSIRO to approach Andre Punt to potentially update or further clarify his advice paper regarding what should be done if a likelihood value falls outside of the 95% confidence interval.	CSIRO	As soon as practical
27	4.1 SESSFRAG Data 2018	SERAG to consider the following matters at its next meeting for the purposes of TAC setting for the second and third year of a three year MYTAC in 2019-20 and 2020-21: d. SETFIA's proposal to limit TAC of orange roughy; and e. an exploration of alternative methods to estimate *M*, taking into consideration life history parameters etc. f. an exploration of the sensitivity of the existing assessment to future catches and fixed values of natural mortality. This would provide a risk assessment to understand the impacts of higher catches being included in the lower productivity model. An AOS to be run in 2019 and SERAG to consider further work required to estimate biological parameters as part of the 2020 assessment.	SERAG	SERAG 1 2018
28	6.1 SESSFRAG Data 2018	A CV validity rule to be added to the package of changes to discard calculations for next year. There should be a discussion between CSIRO and AFMA to add additional time in the contract to consider these issues properly.	CSIRO/AFMA	SESSFRAG Data 2019
29	6.3 SESSFRAG Data 2018	CSIRO to examine ocean perch state data to determine whether the assumption that all catches were of inshore ocean perch, can be improved.	CSIRO	As soon as practical
30	6.3 SESSFRAG Data 2018	The working group considering un-assessable species to consider advice around dealing with Tier 4 species with high discards.	SESSF working group consisting of AFMA / RAG Chairs / scientists	SESSFRAG Chairs 2019

31	10.1 SESSFRAG Data 2018	CSIRO to include hit rate (proportion of ISMP shots catching that species group) within the discard report for 2019 and graphically present the information on observed discards.	CSIRO	SESSFRAG Data 2019
32	10.1 SESSFRAG Data 2018	AFMA to review observer reports for deepwater shark size and ID to verify that correct species are being recorded.	AFMA (Dan Corrie)	SERAG 1 2018
33	10.1 SESSFRAG Data 2018	AFMA to coordinate Data meeting and ensure that the following documents will be provided: • CSIRO FIS review • Dr Knuckey's FIS review • SMARP update • Declining indicators workshop information/summary AFMA SESSF data plan	AFMA	SESSFRAG Data 2019

Stock Assessment Schedule

Species	MYTAC in 2018-19 season	Last assessed and assessment tier	2018	2019	2020	2021	2022	2023	AFMA management comment
Alfonsino	4th year of a 3 year MYTAC	2014		3			3		SESSFRAG advice to push back because of low catches
Bight Redfish	3rd year of 5 year MYTAC	2015			1				SESSFRAG requested GABRAG to review the GABFIS and catch rates during the MYTAC period
Blue Eye Trevalla	Single year TAC	2017	4/5			4		4	Tier 4 for slope, Tier 5 for seamounts
Blue Grenadier	5th year of a 3 year MYTAC	2013	1			1			Under-caught and above target
Blue Warehou	N/A	2014							
Deepwater Flathead	2nd year of a 3 year MYTAC	2016		1			1		
Deepwater shark east	Single Year TAC	2017	4			4			SESSFRAG recommended a revised CTARG not including catch from inside the closures
Deepwater shark west	Single Year TAC	2017	4			4			SESSFRAG recommended a revised CTARG not including catch from inside the closures
Elephant Fish	Single year TAC	2017 (not accepted)		?					SESSFRAG recommended postponing this assessment pending further advice on assessment approach.
Flathead	2nd of 3 Year MYTAC	2016		1			1		
Gemfish - East	N/A	2010			1			1	
Gemfish - west	2nd year of a 3 year MYTAC	2016		4			4		Advice from GABRAG is to move to a Tier 4 for the CTS component of the stock. Move assessment to SERAG
Gummy Shark	2nd year of a 3 year MYTAC	2016		1?			1		SESSFRAG advice for SharkRAG to consider moving the assessment back by 2 years
Jackass Morwong	3rd year of a 3 year MYTAC	2015	1						
John Dory	1st year of a 3 year MYTAC	2017			4				SESSFRAG advice to consider how to assess this and other species with conflicting data
Mirror Dory	Single year TAC	2017	4	4	4	4	4	4	Annual assessment given the cyclical nature of stock abundance
Ocean Perch	1st year of a 3 year MYTAC	2017			4			4	

Orange Roughy - south	N/A	2000							
Orange Roughy - east	1st year of a ? year MYTAC	2017			1			1	
Orange Roughy - west	N/A	2002							Limited effort, bycatch TAC
Orange Roughy - Cascade Plateau	N/A	2009							Limited data
Orange Roughy - Albany & Esp	N/A	N/A							Limited effort, bycatch TAC
Oreo Smooth - Cascade	Long term TAC (catch dependent)	2010							Limited data
Oreo Smooth - other	3rd year of a 3 year MYTAC	2015		5?					Consider approach to assessment at SESSFRAG 2019
Oreo Basket	1st year of a 3 year MYTAC	2017			4				
Pink Ling	3rd year of a 3 year MYTAC	2015	1			1			
Redfish	N/A, bycatch TAC	2017			1			1	
Ribaldo	1st year of a 3 year MYTAC	2017			4			4	
Royal Red Prawn	1st year of a 3 year MYTAC	2017			4			4	
Saw Shark	1st year of a 3 year MYTAC	2017			4			4	
School Shark	N/A (Index of Abundance start 14/15)	2012	1			1			Apply close kin genetics index of abundance
School Whiting	1st of a 3 year MYTAC	2017			1			1	Stock structure work prior to 2020 assessment
Silver Trevally	1st year of a 3 year MYTAC	2017			4			4	
Silver Warehou	3rd year of 3 year MYTAC	2015	1			1			
			2018	2019	2020	2021	2022	2023	