



Australian Government
Australian Fisheries Management Authority



SESS Fishery South East Resource Assessment Group (SERAG) Meeting #2 November 2016

23 - 24 November 2016

CSIRO, Hobart

Meeting Minutes

Chair: Mr Sandy Morison

Attendance

Name	Membership (type i.e. chair etc.)
Members	
Mr Sandy Morison	Chair
Dr Brigid Kerrigan	AFMA member
Dr Geoff Tuck	Scientific member, CSIRO (during flathead assessment only)
Mr Andrew Penney	Scientific member, Pisces Australis
Dr Rik Buckworth	Scientific member
Dr Simon Nicol	Scientific member, ABARES
Dr Sarah Jennings	Scientific (economics) member
Mr Simon Boag	Industry member
Mr Ross Winstanley	Recreational member
Mr Ross Bromley	Executive Officer - AFMA
Apologies	
Dr Simon Nicol	Scientific member
Invited participant	
Mr George Day	Senior Manager, AFMA
Dr Ian Knuckey	Fisheries consultant, Fishwell Consulting
Mr Tom Bibby	Invited participant, industry
Mr Kyne Krusic - Golub	Fish Ageing Services
Observers	
Dr Judy Upston	Assessment scientist, CSIRO
Dr Jemery Day	Assessment scientist, CSIRO
Dr Robin Thomson	Assessment scientist, CSIRO
Dr Malcolm Haddon	Assessment scientist, CSIRO
Dr Rich Little	Assessment scientist, CSIRO
Dr Miriana Sporcic	Assessment scientist, CSIRO
Dr Rudy Kloser	Assessment scientist, CSIRO
Dr Rowan Chick	Assessment scientist, NSW Fisheries
Mr Dan Corrie	Senior Management Officer - AFMA
Mr Ryan Keightley	Acting Manager, Gillnet Hook and Trap Fishery (present until conclusion of blue eye presentation)
Apologies	
Mr John Jarvis	Industry member
Dr Geoff Tuck	Scientific member. Present for flathead assessment



DAY 1, Wednesday 23 November

1. Preliminary

1.1 Welcome, introduction and apologies

1. The Chair opened the meeting and welcomed members and other participants at 13:30, Wednesday 23 November 2016.
2. The RAG accepted apologies from Dr Geoff Tuck and Mr John Jarvis.

1.2 Declarations of interest

3. The RAG followed the conflict of interest declarations as outlined in the revised Fisheries Administration Paper 12 (FAP12). A list of the full conflicts of interest declarations made by SERAG members and other participants for the meeting is provided in Attachment 4 and has been updated from the previous meeting where required.
4. Messrs Boag and Bibby left the room in turn while the RAG considered their declared conflict of interests. The RAG agreed that Messrs Boag and Bibby have expertise in the fishery that warranted them being allowed to participate in the meeting, however they may be asked to leave the room when recommended biological catches (RBCs) were being decided. The RAG noted that any RAG member can bring any perceived conflict to the Chair's notice and that the issue can be dealt with at the time on a case by case basis.
5. The Chair drew the RAG's attention to Fisheries Administration Papers 7 and 12 and Fisheries Management Paper 12. The Chair pointed out the confidential nature of some of the data presented at SERAG and informed all those present that this information must not be disseminated without explicit approval from AFMA and the Chair.
6. Information from the RAG must not be used to give advantage to members when trading quota. AFMA has monitored quota trading in the past and although it has not found any evidence of insider quota trading, trades will continue to be monitored.

1.3 Adoption of minutes from October 2016 SERAG meeting

7. The RAG noted there was a small number of members' comments still to be included in the final draft of the October 2016 SERAG minutes. The executive officer undertook to send out the final draft minutes next week.

Action item 1 – Ross Bromley – by week ending 2 December

Distribute the final draft minutes of the October 2016 SERAG meeting for members clearance.

1.4 Adoption of agenda

8. The RAG made a number of amendments to the agenda:



- Include a short discussion on Dr Thomson's work on using four year weighted average of state catch when calculating TACs.
- Discuss Dr Little's review of eastern gemfish CPUE.

1.5 Action items from SERAG October 2016

9. RAG members reported on outcomes arising from action items from the SERAG October 2016 meeting. A summary of outcomes is provided in Attachment 2.
10. Eastern gemfish length data from Zone 10 are not yet in the database. The general protocol is not to use lengths from fish used in the ageing sample to avoid double use of these data. Dr Knuckey observed that there was little (if any) gemfish sampling undertaken at the Sydney Fish Market (SFM). He explained that if any gemfish are caught they are generally sold through the SFM and that this was an ideal place to get length frequency samples.

2. Blue eye trevalla – Tier 4 assessment

11. Mr Les Scott and Mr Will Mure were present for this session. Both declared conflicts of interest that are recorded in Attachment 4 and left the room in turn while these were considered by the RAG. The RAG agreed that Messrs Scott and Mure have expertise in the fishery that warranted them being allowed to participate in the meeting, however they may be asked to leave the room when recommended biological catches (RBCs) are being recommended.
12. Dr Haddon detailed the objectives of his project to develop a catch per hook CPUE series and presented the blue eye trevalla (BET) Tier 4 assessment. The objectives of the project were to:
 - review and amend database records to enable calculation of catch-per-hook for drop-line and auto-line
 - develop an algorithm for each method for doing this amendment so that it was repeatable and defensible
 - develop a single time-series of catch-per-hook CPUE for use in the Tier 4 assessment
 - do a Tier 4 assessment using catch per hook rather than catch per day.
13. Dr Haddon explained the reason that BET were assessed using a Tier 4 method instead of a Tier 1 was a function of the data. Tier 1 assessments require representative CPUE, catch and age and length composition data. The available age and length data were patchy due to historical changes in fishing area, closures, the methods of fishing and low sampling.
14. The RAG noted that prior to 2003 dropline was the dominant method used to catch BET. Since then most of the catch has been taken by automatic long line. To get a representative CPUE index a single catch per hook index is required. The assessment ignores catch rates of all methods other than auto-line and drop line, however catches from all methods are included in the assessment. Data from the seamounts are also treated similarly.
15. Dr Haddon described the Tier 4 analysis he had used for BET (Haddon, 2016):



- The analysis is based on the catch per hook time series from the auto long line and drop line data.
 - The drop line time-series extends from 1997 – 2006 and the auto long line time series from 2002 – 2015.
 - The two time-series will be combined by normalising the mean standardized CPUE over the period 2002 – 2006 to 1.0 for both series, and using the catch-weighted average trend across the two in the period of overlap.
 - The blue-eye catch will include all catches from zones 20 – 50 plus those from the eastern sea-mounts but not the catch-rates.
 - The data from the GAB are not to be included in the Tier 4 analysis.
 - Despite not including GAB catches or catch rates, and that the GHaT sector includes the GAB, the BET fishery is to be considered a single stock for the purposes of this assessment.
16. Dr Haddon told the RAG that he had “cleaned” the data by removing unrepresentative single drop line data, data with large error bars and auto long line data with a small number of hooks and large catch rates. After cleaning, the remaining data represented 84 per cent of the catch and was considered to be representative of the fishery. The RAG commented that because most of the catch is taken by a small number of boats, changes in BET catch rates may also be influenced by changes in their fishing patterns, i.e. whether the boats are targeting pink ling or BET.
17. Dr Haddon tested the effect of the eastern Tasmanian closures on catch rates and found they had no effect.
18. Dr Haddon also ran a sensitivity test on the effect of including and excluding data from the Great Australian Bight in the assessment. Dr Haddon reported that this had negligible effect on the catch rate or outcome of the assessment.
19. The RAG agreed that the analysis as described in point 15 should remain as the BET base case until Dr Williams’ report on stock structure is finalized and the RAG has had a chance to consider its findings.

Action item 2 – Ross Bromley – immediately

Circulate Dr Alan Williams’ blue eye trevalla presentation given at the October SERAG meeting.



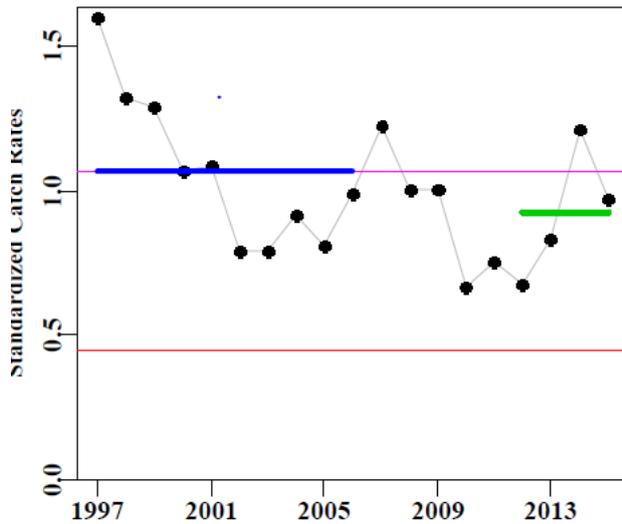


Figure 1 Standardized catch rates (combined drop-line and auto-line catch-per-hook) with the upper pink fine line representing the target catch rate and the lower red line the limit catch rate (Haddon, 2016).

Table 1 RBC calculations for blue eye trevalla. C*(target) and CE Targ relate to 1997-2006, CE_Lim is 41.66% of the target. CPUE is the average catch rate over the last four years. RBC calculation does not account for predicted discards of predicted State catch. Wt_Discard is the weighted average discards from the last four years (Haddon, 2016).

Blue eye trevalla, auto and drop line	1997 - 2015
Ref year	1997 - 2006
CE Target	1.0660
CE Limit	0.4442
CE Recent	0.9230
Wt Discard	0.736
Scaling	0.7701
Current TAC	335
C* (target)	682.931
RBC	525.923

20. The RAG accepted the Tier 4 assessment and the RBC of 526 tonnes and recommended that the discount factor not be applied due to the conservative estimate of RBC (not accounting for Orca depredation) and protection afforded the stock by fishing closures.
21. The RAG did not support a MYTAC for BET explaining that a MYTAC could not be justified prior to the RAG considering alternative stock structures from Dr William’s work on BET stock structure next year.

Table 2 Blue eye trevalla RBC recommendation

Species	Assessment	RBC (t)	MYTAC	Discount factor	Under/over catch
Blue eye trevalla	Tier 4	526	No	No	Overcatch – 10% Undercatch – 100%



Weighted and unweighted means of estimates of state catches

22. During discussions of BET the value of state catch to be deducted from the BET RBC to calculate the TAC was raised.
23. At the October 2016 SERAG meeting the RAG discussed the process for calculating TACs from RBCs and confirmed that a four year weighted average is currently used for calculating discards. The RAG considered if the same weighting should be used when estimating State catch and discards for calculating TACs. The RAG had requested Dr Thomson to investigate the best way to use previous estimates of discards and State catches to predict the next year's discard levels and State catches (previous action item).
24. The RAG referred to Dr Thomson's work on this in 'Thomson and Upston 2016. SESSF catches and discards for TAC purposes'. An extract from that report follows.
25. "When an RBC is converted to a TAC, estimates are needed of the State landings and SESSF-wide discards for the fishing year that is yet to occur. A four year average over the most recent State landings and discards has been used to provide the required forecast. A weighted mean has been applied to discards, but an unweighted (standard) mean has been applied to State landings. To examine the question of which form of mean is the better predictor, both have been applied to past data and the result has been compared to the value it was meant to forecast".
26. "The weighted mean is clearly the better predictor. Figures 1 and 2 (from the report) were constructed by:
 - taking a 4 year moving average (weighted and unweighted) over the State landings (or the discard weight), starting with 1998-2001, and ending with 2011-2014
 - dividing each average value by the value for the following year (e.g. mean over 1998 to 2001, divided by 2002 value)
 - using the resulting 14 values per species to construct a box plot".
27. Following the results of this analysis, the RAG recommended using the weighted mean of the previous four years' discard weights and State catches in calculating the quantities to deduct from RBCs when determining a TAC.

3. Orange Roughy**3.1 Report on the 2016 orange roughy Acoustic Optical Survey**

28. The RAG noted the declaration of interest from Dr Rudy Kloser (see Attachment 4).
29. Dr Kloser presented the preliminary results from the 2016 eastern zone orange roughy acoustic optical survey (AOS). The objectives of the survey were to:
 - trial a new net-attached AOS that is broadband capable
 - provide acoustic biomass estimates of spawning orange roughy in the eastern zone in 2016



- collect biological data to support target strength, age, length, weight and reproductive potential analyses in 2016
 - document the physical environment.
30. The survey used dual frequency echo sounders (38 and 120 kHz) to acoustically survey orange roughly aggregations on St Helen's Hill and St Patrick's Head from 14 – 24 July 2016. An AOS is attached to a commercial trawl net that is towed above fish aggregations. Species are identified using multiple lines of evidence: trawl catch, optical observations from the cameras on the AOS, fish target strength, depth and location. Dr Kloser was of the view that the data gathered by the survey was of high quality.
31. Dr Kloser noted that the survey encountered a large East Australian Current eddy off the eastern Tasmanian coast during the survey that influenced sampling and appears to be an increasing trend.

Table 3 Provisional summary of orange roughly biomass estimates:

Location	Year					
	1999	2006	2010	2012	2013	2016
St Helen's Hill	5 200	10 280	19 200	12 058	9 547	21 064
St Patrick's Head	14 773	1 456	6 200	7 136	6 458	5 773
Percentage at St Helen's Hill	26	88	76	63	60	73
Total (t)	19 973	11 736	25 400	19 194	16 005	26 837

32. Dr Kloser detailed some work that needs to be completed prior to his report being finalised:
- Finalise calibration checks – deepwater calibration of system scheduled in December on RV Investigator.
 - Recheck biomass estimates for any inconsistencies, school position, dead zone and correction factors of absorption and calibration.
 - Calculate survey CV's and overall error.
 - Document physical environment.
 - Review fecundity estimates.
33. The RAG noted the importance of the data from this survey to the 2017 orange roughly assessment. The RAG recommended that all survey data be sent to AFMA for inclusion in the database prior to the next assessment.

Action item 3 – Caroline Sutton – in time for inclusion in the 2017 assessment

CSIRO to provide data from the 2016 AOS survey for inclusion on the AFMA database in time for use in the 2017 orange roughly assessment.

34. The RAG discussed the conservation dependent classification of orange roughly and considered the process and resources required to provide information to assess/support delisting the species. The RAG noted the rebuild of the eastern stock and observed that it was not unreasonable to consider that orange roughly stocks in the southern and western zones had also



similarly increased. Dr Kloser advised that the AOS would not be a suitable method of surveying the southern and western zones due to orange roughy not forming spawning aggregations in these zones, remaining dispersed in the seabed acoustic shadow area. This issue was further discussed when considering the rebuilding strategy for orange roughy (Agenda item 5.4).

3.2 Ageing requirement for the 2017 orange roughy assessment

35. Mr Krusic-Golub informed the RAG that ageing of 1000 orange roughy otoliths had been allowed for in the budget however he has a lot more otoliths than this. He and Dr Upston agreed that 1600 otoliths (800 from 2013 and 800 from 2016) would need to be aged for the 2017 assessment. Mr Krusic-Golub suggested that, as John dory and redfish ageing had been budgeted for, but were not due for assessment, this money be reallocated to ageing the additional 600 orange roughy otoliths. The RAG supported this proposal subject to successful reallocation of money by AFMA.
36. The RAG was informed that Fish Aging Services (FAS) has otoliths collected by ISMP observers as part of the AOS survey. The RAG was of the opinion that the AOS otoliths were more consistently collected and due to the slow growth of orange roughy, obtaining an age-composition snap shot every three years is appropriate. Therefore the AOS samples are more suitable for use in the assessment and should be aged in preference to the ISMP samples. The RAG advised that collecting more ISMP data from the fishery was not a priority.
37. The RAG resolved to review the data needs for the 2017 orange roughy assessment at SESSFRAG in March 2017.

The Chair adjourned the meeting at 6:00 PM

DAY 2, Thursday 24 November

38. Dr Geoff Tuck arrived for this session. Dr Tuck declared conflicts of interest that are provided in Attachment 4.

4. Tier 1 assessment – tiger flathead

39. Dr Day presented the 2016 tiger flathead assessment.
40. Dr Day explained the updates to the model and data since last assessment:

Standard updates

- update Stock Synthesis software from SS-V3.24f to SS-V3.24
- add 3 years of new data: catch; CPUE; length and age data to 2015
- update the ageing error matrix
- add one more year of FIS abundance survey (winter only)

Structural modifications to model and data since last assessment

- length frequency split into onboard and port components



- length frequency now initially weighted by shots and trips
 - FIS length frequencies now included (2008, 2010, 2012, 2014)
 - new tuning procedure, incorporating Francis (2011)¹ weighting
 - likelihood components for length and age no longer down-weighted (now set lambdas to 1 as Francis weighting has been used)
41. Dr Day explained that the 2016 assessment produced similar results to the 2013 assessment except:
- recruitment was estimated to 2012 (was previously estimated to 2009)
 - recruitment estimates for 2004, 2006, 2007 and 2009 have been revised down
 - new recruitment estimates are all above average (2010, 2011, 2012).
42. Recent recruitments are well estimated and supported by recent age data. Of the last 10 years of recruitment estimated:
- five years are good (2003, 2008, 2010, 2011, 2012)
 - two are years poor (2004, 2005)
 - three years are average (2006, 2007, 2009).
43. Dr Day advised some caution as it is possible for future data to result in adjustment to estimates of recent recruitment, as occurred between this and the last assessment. The RAG noted the changes in recruitment estimates and commented that age structured models are often optimistic in the most recent recruitment estimates, which are often revised downwards with new data in subsequent assessments.
44. The RAG discussed whether to use one or two FIS fleets in the assessment. The October SERAG meeting supported using a single FIS fleet however when Dr Day separated the data into two fleets the selectivity of the eastern Tasmanian FIS fleet was similar to the eastern Tasmanian commercial fleet, i.e. different length frequencies have been observed in the two trawl regions east (zones 10 and 20) and Tasmania (zone 30), a higher proportions of older and larger fish were noted in zone 30.
45. The RAG queried if Dr Day had used summer or winter FIS length frequency data in the model. Dr Day undertook to check and confirmed that he only used the data from the winter FIS.

Action item 4 – Dr Day – Immediately

Dr Day to check and ensure that only winter FIS length frequency data are used in the tiger flathead Tier 1 assessment model.

¹Francis, R.I.C.C., 2011. Data weighting in statistical fisheries stock assessment models. *Can. J. Fish. Aquat. Sci.* 68, 1124–1138.



46. The RAG agreed that the fish off eastern Tasmania were larger and there were clear differences in the selectivity of the two FIS fleets. Sensitivity with the FIS split into two fleets has been fully tuned. RBCs have been calculated and showed little difference between the two models. The RAG supported using the model that included two separate FIS fleets i.e. Zones 10 and 20, and Zone 30.
47. The RAG noted poor model fits to Danish seine length frequencies and discards. Industry has previously advised that the Danish seine fleet had changed codend mesh size over the last six years. There was some confusion as to the actual time of this change and the RAG requested AFMA to investigate when and what changes had occurred in Danish seine gear. The RAG recommended incorporating gear changes into the next assessment, provided the necessary data could be obtained.

Action item 5 – AFMA – prior to March 2017 SESSFRAG meeting

Investigate if any changes have occurred in the Danish seine codend size. If any changes have occurred report the type of change and date of the change for inclusion in the next flathead assessment.

48. Dr Day ran a series of model sensitivities that are described in the assessment document. The results from the sensitivities are as follows:
- The model is most sensitive to changes in natural mortality, M.
 - The model is also sensitive to excluding recruitment estimates from 2009, 2010 and 2011 (recent above average recruitments).
 - Changes to the other fixed parameters produce little change to the overall likelihood and only minor changes to the depletion estimates.
 - Changing the weighting on various data sources has only minor impacts on the depletion estimates.
 - Splitting the FIS into two fleets results in very minor changes.
 - Overall the model is insensitive to the sensitivities run.

Conclusions

49. The RAG accepted the assessment as the base case (including two FIS fleets) and noted:
- it is not possible to fit all 6 (or 7) CPUE series equally well
 - length and age fits are good
 - good recruitment since the late 1980s has kept the biomass around the target (40 %) allowing recent RBCs to be set above the long term average
 - projected 2017 spawning stock biomass is 43 per cent of virgin stock biomass
 - the RBC from the base-case model for 2017 is 2,971 t for the 20:35:40 harvest control rule, with a long-term yield of 2,765 t



- the average RBC over the three year period 2014-2016 is 2,936 t and over the five year period 2014-2018, the average RBC is 2,909 t
- when the FIS is split into two fleets the spawning biomass is still estimated to be 43 per cent of B_0
- with recruitment estimated to 2009, the spawning biomass is estimated to be 31 per cent of SSB_0 .

50. The RAG discussed its RBC recommendation and noted that the previous RBC was set by taking an average of the next three years projected RBC. The RAG agreed to maintain this approach and recommended an MYRBC of 2902 t per year for the next three seasons. In doing so, the RAG noted that with a declining projected RBC, the catch in the third year of the MYRBC could exceed the RBC of 2 876 t, but considered that the difference (26 t or <1%) was very small and did not constitute a significant risk to the stock.

Table 4 Yearly projected RBCs under the 20:35:40 harvest control rules using the 2 fleet FIS base case and assuming average recruitment from 2013.

Year	RBC (t)
2017	2 929
2018	2 900
2019	2 876
2020	2 857
2021	2 841

51. The RAG also discussed its recommendation on how discards should be accounted for when setting the TAC and noted that the previous RAG recommended using the average of the last three years of model estimated discards. The RAG agreed to maintain this approach and recommended using a discard estimate of 160 t per year for the next three seasons.

Table 5 Yearly projected discards (tonnes) across all fleets under the 20:35:40 harvest control rules with catches set to the calculated RBC for each year from 2017 to 2021: assuming average recruitment from 2013 and using the 2 FIS fleet base case.

Year	Discards (t)
2017	159
2018	160
2019	162
2020	163
2021	163

Table 6 Tiger flathead RBC recommendation

Species	Assessment	RBC (t)	MYTAC	Discount factor	Under/over catch
Tiger flathead	Tier 1	2 902 for the next three years	Yes, three years	No	Overcatch – 10% Undercatch – 100%



5. SERAG annual report on rebuilding strategies

5.1 Redfish

52. The RAG noted there was no improvement in the redfish CPUE but observed that, as no assessment had been undertaken this year, it was not possible to update the estimate of relative biomass.
53. The RAG agreed with the summary of management measures to support redfish recovery but made a number of suggestions:
- industry avoidance of redfish should also included in the summary
 - the total catch and discards would be best reported against the RBC as opposed to the TAC as the RBC was a better indication of the expected total mortality than the TAC
 - include a description of current research projects that are relevant to this species, i.e. the under caught TAC and non-rebuilding stocks projects.
54. The RAG identified that only 12 per cent of the redfish otolith collection target had been met and requested AFMA to address this shortfall with the ISMP, noting that inadequate otoliths would degrade the ability of a future assessment to estimate stock status.

<p>Action item 6 – AFMA – immediately</p> <p>Ensure that the redfish otolith collection target is met.</p>

55. The RAG reviewed maps of catch locations over time and found no evidence of redfish range contraction.
56. The RAG expressed the view that, notwithstanding early high catches, they didn't think fishing mortality was the driver for the slow rebuild of this species. The RAG has previously noted that redfish recruitment has been below average for some time, for whatever reason, and this would slow any recovery.

5.2 Eastern gemfish

57. The RAG reviewed the paper and made the following comments:
- The non-spawning standardized CPUE was relatively stable over the last 20 years. However recent catch rates cannot be used as a reliable index of abundance due to avoidance behaviour of operators. Inclusion of discards in the catch rate has the effect of biasing the CPUE high as shots that contain gemfish that are completely discarded are not included in the catch rate.
 - In 2012, 2014 and 2015 catch plus discards were lower than the incidental TAC.
 - Despite a long period of management under the rebuilding strategy there is no evidence of any stock rebuilding.



- The RAG noted variable oceanographic conditions off the east coast of Australia that may have contributed to ongoing failure to recover.
- It appears that rebuilding is being constrained by poor recruitment.
- Data targets are not being met.
- The RAG reviewed maps of eastern gemfish catch locations over time and found no evidence of range contraction.
- Recent genetic work on western and eastern gemfish has given results that are consistent with a small effective eastern gemfish stock size.

5.3 Blue warehou

58. The RAG noted extremely low catches of blue warehou last season and that the geographic range of catches has contracted. The RAG was interested to know if this pattern was also being seen in recreational catches and the Tasmanian amateur grab-all mesh net fishery. The RAG noted that the most recent estimate of the Tasmanian recreational catch of blue warehou in 2010 (22,723 fish, 95% CI 16,514 – 29,780; Lyle and Tracy 2012) and suggested that AFMA attempt to get catch data from these sources and incorporate them in the next report.

Action item 7 – AFMA – next SERAG meeting

AFMA to incorporate reports from the recreational fishery and grab-all mesh net sectors in the next SERAG blue warehou rebuilding strategy report.

5.4 Orange roughy – southern, western and Cascade Plateau zones

59. The RAG noted that catches from the southern and western orange roughy zones are constrained by incidental catch TACs under the Orange Roughy Rebuilding Strategy. Consequently there is no useful CPUE series for these zones.
60. Given the observed recovery of the eastern zone stock, the RAG thought that it was not unreasonable to think that similar rebuilding may have occurred in the southern and western zones and questioned how to evaluate any rebuilding and assess the biomass. Current catches are small, constrained by low TACs and trawl closures and are probably not representative of the stock. The RAG supported re-ageing existing otoliths and collecting new samples so the age compositions from the southern and western zones may be compared with those from St Helen's. The RAG suggested forming a small group to investigate options for alternative methods of assessing these stocks. It was suggested that this would be a good project for SETFIA and the AFMA Industry Liaison Officer (ILO) to undertake.

Action item 8 – SETFIA & ILO – as soon as possible

Facilitate the formation of a small group to investigate methods of assessing the biomass of southern and western zone orange roughy stocks.

61. The RAG noted there had been little fishing effort on the Cascade Plateau and there are very few data available to update the assessment. Considering that in normal circumstances AFMA would not know of any orange roughy catches from the Cascade Plateau until after CDRs had been processed, the RAG recommended developing a plan to gather data from these catches in port.



Mr Bromley suggested requesting AFMA to put a geofence around the Cascade Plateau in the VMS system that will alert management of any boats fishing in the area and arranging to meet the boat in port to sample the orange roughy. Mr Boag undertook to liaise with operators to facilitate catch sampling if they fished on the Cascade Plateau.

Action item 9 – AFMA – May 2017

AFMA to implement a geofence around the Cascade Plateau in the VMS system to monitor fishing activities, and arrange for port based sampling of orange roughy.

Action item 10 – SETFIA – May 2017

SETFIA to liaise with operators fishing the Cascade Plateau to facilitate sampling of orange roughy catches.

6. Western Gemfish

62. GABRAG has seen the first draft of the western gemfish Tier 1 assessment and will reconsider it at their next meeting in the first week of December 2016. That RAG's recommendations for an RBC would be presented to the SEMAC meeting in January. Dr Haddon is also doing the Tier 4 CTS (Zone 50 and half Zone 40) assessment to inform the CTS RBC.
63. Dr Nicol summarised the recent genetic study of western gemfish:
- A study of mitochondrial and nuclear DNA was undertaken in Zone 50.
 - There is a strong delineation between the eastern and western gemfish stocks around Portland.
 - There is an area of overlap between the western and eastern stock off western Tasmania and hybrid, sterile gemfish are present in this area. These hybrids move into the eastern gemfish stock area but contribute no reproductive potential to the stock.
 - Effective population size shows signs of a bottleneck (a small number of genetic lines) contributing to the genetic makeup of the eastern stock.
64. Dr Nicol summarised the progress of the current Tier 1 assessment of western gemfish:
- The old Tier 1 assessment has been updated using the current Stock Synthesis software.
 - Additional data have been added.
 - The new assessment seems to have addressed the magnitude of recruitment estimates.
 - There appear to be some inconsistencies between the age data, catch rates and length frequency data.
 - Preliminary runs of the model suggest that the stock is around the biomass target and the RBC will be similar to the past.



65. Dr Nicol noted that there are limited data available for the assessment and that the assessment could be improved by collecting more data.

7. Commonwealth Trawl Sector Research Plan

66. Dr Knuckey advised the RAG of his potential conflicts while the RAG was discussing research topics, in particular he being the principal investigator of the SESSF and GABTF Fishery Independent Survey (FIS) and having been shortlisted to supply services for the ISMP. All CSIRO and private consultants (with the exception of the Chair) declared potential conflicts with the research plans being discussed and left the room while this item was discussed.
67. The RAG added a table to the 2017-18 SESSF Annual Research Statement titled 'research projects identified for inclusion in future research plans' and referred to the Southern and Eastern Scalefish and Shark Fishery Five Year Strategic Research Plan 2016-20, which identifies research priorities to be considered in future annual research plans.
68. The research plan is detailed at Attachment 6. Costs and feasibility were not allocated to all projects, and will be updated at the 2016 March SESSFRAG Chairs' meeting.

8. Review of FIS catches

69. The RAG noted the increase in FIS catches of quota and non quota species and noted that any increase over 20 per cent triggered a RAG review. The RAG was comfortable with the increase in catch considering that the location of FIS shots are highly specified and the increase in catch was mostly due to unpredictable shots of schooling species.

9. ECDWT – review of triggers

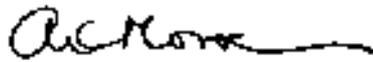
70. The RAG noted there were no data to inform any change to the triggers for boarfish and orange roughy in the ECDWT. The RAG recommended retaining the current triggers;
- boarfish 200 t
 - orange roughy 50 t.

Final

71. The RAG noted that this was Mr Bromley's last RAG meeting and thanked him for his services to the RAG.

The Chair closed the meeting at 15:00





Signed (Chairperson):

Date: 1 February 2017

References

Haddon, M. (2016) DRAFT Blue-Eye (*Hyperoglyphe antarctica*) Tier 4 Analysis using Catch-per-Hook for Auto-Line and Drop-Line from 1997 - 2015. CSIRO Oceans and Atmosphere, Hobart

Lyle, J.M. & Tracey, S.R. (2012) Recreational gillnetting in Tasmania – An Evaluation of Fishing Practices and Catch and Effort. Institute for Marine and Antarctic Studies. University of Tasmania.



Attachment 1. Agenda

Southern and Eastern Scalefish and Shark Fishery South East Resource Assessment Group (SE RAG) Agenda

Venue: Freycinet Room, CSIRO, Castray Esplanade, Hobart

Day 1: Wednesday 23 November 2016

Time: 13:30- 17:15

Chair: Mr Sandy Morison

1	Preliminaries		13:30 (45 mins)
1.1	Welcome and introductions/apologies	Chair	
1.2	Adoption of agenda	Chair	Action
1.3	Declarations of interest	Chair	Action
1.4	Acceptance of minutes from October 2016 meeting	All	Action
1.5	Status of actions arising from October SERAG	AFMA	Action
2	Blue eye trevalla – Tier 4 assessment	Malcolm Haddon	14:15 (1.45hrs)
2.1	Presentation of draft base case		Information
2.2	RBC recommendation		Advice
2.3	Recommended breakout rules		Advice
2.4	Identification of future data requirements		Advice
	<i>Afternoon tea</i>		15 mins
3	Orange Roughy		16:15 (1 hr)
3.1	Report on Orange Roughy AOS	Rudy Kloser	Information
3.2	Ageing requirements for the 2017 Orange Roughy assessment	Kyne Krusic-Golub	Advice
17:15	Adjourn meeting		



Day 2: Thursday 24 November 2016**Time: 08:30 - 15:00**

4	Tiger Flathead – Tier 1 Assessment	Jemery Day	08:30 (2 hrs)
4.1	Presentation of draft base case		Information
4.2	RBC recommendation		Advice
4.3	Recommended breakout rules		Advice
4.4	Identification of future data requirements		Advice
	<i>Morning tea</i>		10:30
5	SERAG annual report on rebuilding strategies	Dan Corrie	10:45 (1.5 hrs)
5.1	Redfish		Advice
5.2	Gemfish east		Advice
5.3	Blue warehou		Advice
5.4	Orange roughy		Advice
6	Western gemfish – update SERAG on outcomes of draft Western Gemfish Tier 1 assessment (GAB RAG) and pending CTS Tier 4 assessment.	Brigid Kerrigan/ Malcolm Haddon	12:15 (45mins) information
	Lunch		13:00
7	CTS Research Plan 2018-19	Brigid Kerrigan	13:30 Advice
8	Review of FIS catches. Noting an increase of > 20 per cent therefore triggering a RAG review.	George Day	14:15 Advice for Commission
9	East Coast Deepwater Trawl – review of triggers		14:25
10	Meeting overview and wrap up, including review of meeting action items and data needs identified by the meeting	Sandy Morison	14:30
15:00	Close meeting		



Attachment 2 - Outcomes of outstanding action items from SERAG October 2016 meeting

No.	Action item	Action person	Time frame	Outcome
1	Dr Thomson to investigate if state catches used in the TAC calculations can be better estimated using a weighted average of previous years catch data.	Dr Thomson	November SERAG Meeting	Complete. A better estimate is made by using four year weighted average.
2	Dr Day to prepare a report characterizing the available school whiting data and proposed stock assessment structure.	Dr Day	SESSFRAG March 2017	Ongoing
3	Dr Little to complete work on eastern gemfish CPUE using discards to see if it changed trends and affected the likelihood of there being evidence of recovery.	Dr Little	November SERAG Meeting	Reported at this meeting.
4	AFMA to check with Fish Ageing Services if there are any potential reasons for the difference between the port length frequency and age frequency of eastern gemfish.	AFMA	November SERAG Meeting	Complete. Age and length frequencies in the data summary are reasonable, i.e.50 – 90 cm fish are between 1 – 5 years of age.
5	AFMA to investigate the small numbers of eastern gemfish lengths reported off NSW in 2015	AFMA	November SERAG meeting	Complete. 475 lengths collected form Zone 10. The general protocol is not to use lengths from ageing, only collected length frequencies, to avoid double counting.
6	AFMA change the advice sought from the RAG from “justifications for regionalizing a number of stocks” to “identify if there are any stocks that show signs of stock structure, based on our knowledge, and if so are they suitable candidates to be managed as more than one stock”.	AFMA	Immediately	Noted. This will be incorporated into future work.
7	AFMA to review SESSF MYTAC species breakout rules over the next twelve months.	AFMA	SESSFRAG Data meeting	Due to start in early 2017. Species assessed in 2016 have been updated.



Attachment 3 - Data notes identified by the RAG

Species	Details	Timeframe
Western gemfish	Increase sampling of GAB and CTS western gemfish catch to inform Tier 1 assessment	As soon as possible
Eastern Redfish	Ensure that the redfish otolith collection target is met.	As part of the ISMP
Eastern gemfish	Implement a sampling program of eastern gemfish at the Sydney Fish Market to inform assessment of eastern gemfish	As soon as possible but especially for the winter spawning run.

Attachment 4 - Declarations of interest

Name	Interest Declared
Mr Sandy Morison	<p>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.</p> <p>No pecuniary or other interest in the SESSF.</p>
Dr Geoff Tuck	<p>CSIRO. Involved in Stock Assessments. Interest in obtaining funding for future research. Principle investigator on the SESSF stock assessment project.</p>
Dr Rik Buckworth	<p>Scientific member, Northern Prawn RAG Chair, NT Research Advisory Committee (FRDC) Director- Aquatic Remote Biopsy Pty Ltd Research scientist. Interest in obtaining funding for future research. No pecuniary interest or otherwise.</p>
Mr Simon Boag	<p>SETFIA CEO, CFA vice-Chair, runs a consultancy firm. Sits on boards of Commonwealth Trawl Sector boat and quota SFR holding companies as a non-beneficiary director.</p>
Dr Sarah Jennings	<p>Resource economist, Adjunct Senior Researcher, University of Tasmania. Co-ordinator of FRDC's Social Science and Economic Research Program Interest in obtaining funding for future research. No pecuniary interest or otherwise.</p>
Dr Brigid Kerrigan	<p>AFMA. Manager of Commonwealth and GAB Trawl Fisheries section. No conflicts of interest pecuniary or otherwise.</p>
Mr Andrew Penney	<p>Sole Director of Pisces Australis Pty Ltd, an Australian registered marine and coastal research and management consultancy based in Canberra. As such, I have an interest in any opportunities in this regard.</p>



	<p>Co-investigator on FRDC Project 2014-203: SESSF Monitoring and Assessment – Strategic Review</p> <p>Independent scientific member on the AFMA SPF and TRL RAGs and member of the AFMA ERA Technical Working Group.</p> <p>Member of ABARES project team developing guidelines for a revised harvest strategy.</p> <p>No shareholding and hold no positions relating to any other companies, including any fishing companies or industry associations</p>
Mr Daniel Corrie	AFMA, Demersal and Midwater Trawl Fisheries section. No pecuniary interest or otherwise.
Mr Ryan Keightley	AFMA, Acting GHaT Manager. No pecuniary interest or otherwise.
Mr Ross Winstanley	No pecuniary interest in this fishery however declares he has a brother in law that holds a Victorian Inshore Trawl License
Mr Kyne Krusic-Golub	Fish Ageing Services. Provider of fish ageing services to AFMA. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Mr Ross Bromley	AFMA. Demersal and Midwater Trawl Fisheries section. No pecuniary interest or otherwise.
Mr George Day	AFMA. Demersal and Midwater Trawl Fisheries section. No pecuniary interest or otherwise.
Dr Rich Little	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Rudy Kloser	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Jemery Day	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Robin Thomson	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Judy Upston	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Miriana Sporic	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Malcolm Haddon	CSIRO, Assessment scientist. Interest in acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Rowan Chick	NSW Fisheries, Assessment scientist. Acquiring funding for research purposes. No pecuniary interest or otherwise.
Dr Ian Knuckey	<p>Positions:</p> <p>Director – Fishwell Consulting Pty Ltd</p> <p>Director – Olrac Australia (Electronic logbooks)</p> <p>Chair / Director – Australian Seafood Co-products (seafood waste utilization)</p> <p>Chair / Director – ASCo Fertilisers (seafood waste utilization)</p> <p>Chair – Victorian Rock Lobster and Giant Crab Assessment Group</p> <p>Agent – Olrac Australia electronic logbooks</p>



	<p>Invited scientific participant – SEMAC, SERAG</p> <p>Current / Recent Projects and funding:</p> <p>Principal Investigator – Fishery Independent Survey of shelf resources in the Great Australian Bight Trawl Fishery 2015</p> <p>Principal Investigator – FRDC project investigating improved profitability in the GABTF.</p> <p>Principal Investigator – Improved understanding of economics in fisheries harvest strategies.</p> <p>Principal Investigator – Realising economic returns of reducing waste through utilization of bycatch in the GAB Trawl Sector of the SESSF</p> <p>Principal Investigator – The social drivers and implications of conducting an ecological risk assessment of both recreational and commercial fishing - a case study from Port Phillip Bay</p> <p>Principal Investigator – Review of Monitoring and Assessment in the SESSF</p> <p>Co-Investigator – Optimising processes and policy to minimise business and operational impacts of seismic surveys on the fishing industry and oil and gas industry.</p> <p>Co-investigator – SESSF 2016 Fishery Independent Survey</p> <p>Co-investigator – Bird mitigation in the SESSF trawl sector</p> <p>Researcher – Various fishing industry liaison projects for oil and gas industry</p> <p>Researcher – Review of mammal mitigation for a Seafish Tasmania pelagic trawler</p> <p>Scientific Advisor – GABIA, SETFIA, SSIA, SPF (Geelong Star), Gulf St Vincent Prawn Fishery</p> <p>Facilitator – WWF shark traceability workshop</p> <p>Facilitator – Indonesian fishery training and development</p>
Dr Fay Helidoniotis	ABARES. No pecuniary interest.
Mr Andy Moore	ABARES. Interest in obtaining funding for future research. No pecuniary interest.
Mr Tom Bibby	Commonwealth Trawl Sector boat and quota SFR holder. Chairman of SETFIA.
Mr Les Scott	<p>Managing Director: Petuna Sealord Deepwater Fishing P/L an Australian resident company which holds various fishing rights in, and operates vessels in the SESSF, GHAT, East Coast Deepwater Fishery, Coral Sea and International fisheries operating a vessel under an Australian Flag;</p> <p>Advisor to PG&UM Rockliff – Petuna Fisheries who hold various fishing rights in the SESSF, GHAT, Commonwealth and State (Tasmania) Scallop Fishery, Small Pelagic Fishery, East Coast Tuna Fishery, Off Shore Fisheries and Tasmanian State Fisheries.</p>
Mr Will Mure	Commonwealth Auto longline SFR and quota SFR holder.



Attachment 5 - Action items from this meeting

Item Number	Description	Responsible Person	Timeframe
1	Distribute the final draft minutes of the October SERAG meeting for members clearance.	Ross Bromley, AFMA	By week ending 2 December
2	Circulate Dr Alan Williams' blue eye trevalla presentation given at the October SERAG meeting.	Ross Bromley, AFMA	Immediately
3	CSIRO to pass on data from the 2016 AOS survey for inclusion on the AFMA database in time for use in the 2017 orange roughy assessment.	Caroline Sutton	In time for inclusion in the 2017 assessment
4	Dr Day to check and ensure that only winter FIS length frequency data are used in the tiger flathead Tier 1 assessment model.	Dr Day	Immediately
5	Investigate if any changes have occurred in the Danish seine codend size. If any changes have occurred report the type of change and date of the change for inclusion in the next flathead assessment.	AFMA	Prior to March 2017 SESSFRAG meeting
6	Ensure that the redfish otolith collection target is met.	AFMA	Immediately
7	AFMA to incorporate reports from the recreational fishing and grab-all mesh net sectors in the next SERAG blue warehou rebuilding strategy report.	AFMA	Next SERAG meeting
8	Facilitate the formation of a small group to investigate methods of assessing the biomass of southern and western zone orange roughy stocks.	SETFIA & ILO	As soon as possible
9	AFMA to implement a geofence around the Cascade Plateau in the VMS system to monitor fishing activities, and arrange for port based sampling of orange roughy.	AFMA	May 2017
10	SETFIA to liaise with operators fishing the Cascade Plateau to facilitate sampling of orange roughy catches	SETFIA	May 2017



Attachment 6 – Research projects identified for inclusion in future research plans. Costs and feasibility to be updated.

Title	Objectives and component tasks	Evaluation		
		Total cost (approx. only)	Priority/rank	Feasibility
Better understanding of TEPS	Improve understanding of TEP interactions in the SESSF		Low	
Changes in fishing power	Literature review/meta-analysis of changes to fishing power over time Relates to under caught TAC project	Low	High	High
Review of catch history	Document catch history of key SESSF species		Medium	
Updating knowledge of key species biology	Update species biology information for selected key SESSF species	Med	High (not FRDC)	High
Discards	Assess levels of discards and consider the impact of discarding quota and non-quota species and possible responses.		Low	
Selectivity	Further examine the extent and impact of gear changes to assess its effect on gear selectivity and discard rates. Incorporate selectivity changes into the assessments and consider estimating selectivity patterns for various time-blocks.		Medium	
Mitigation of environmental impacts (non-recovering spp. projects)	Develop and evaluate mitigation measures to reduce ecological impacts of the fishery, including incidental catch and discards.		Medium	
Maximising economic returns	<ul style="list-style-type: none"> Identify factors which impact on the profitability of individual operators and the fishery. Improve market dynamics. Increase efficiency of vessels. 		Med	

