



**Australian Government**

**Australian Fisheries Management Authority**

**Southern and Eastern Scalefish and  
Shark Fishery  
Shark Resource Assessment Group  
(SharkRAG)**

**SharkRAG 6 Meeting minutes**

**Date: 01 May 2020**

**Teleconference**

## Attendees

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Name	Membership
Mr Sandy Morison	Chair
Dr Julian Morison	Economics Member
Dr Ian Knuckey	Scientific Member
Dr Charlie Huveneers	Scientific Member
Dr Robin Thomson	Scientific Member
Mr Leigh Castle	Industry Member
Mr Jamie Papas	Industry Member
Mr Craig Harris	Industry Member
Mr Kyriakos Toumazos	Industry Member
Dr Leonardo Guida	Conservation Member
Ms Natalie Couchman	AFMA Member
Mr Maxwell Bayly	Executive Officer
Ms Fiona Hill	AFMA Observer
Ms Anna Willock	AFMA Observer
Mr Ross Bromley	Invited Participant
Mr James Woodhams	ABARES Observer
Ms Anissa Lawrence	Observer

## Meeting Minutes

### 1 Welcome and apologies

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1. The Chair opened the meeting at 10:00 am, noting that members who had declared a conflict of interest against agenda items and invited participants would be dialling in at 10:15 am. Details of discussions concerning the management of conflicts of interest are provided under agenda item 3.
2. No apologies were received. The Chair noted Ms Willock (AFMA) and Mr Woodhams (ABARES) would be joining the meeting as their schedules allowed.

### 2 Adoption of agenda

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3. The RAG adopted the agenda (**Attachment A**), noting a minor amendment to the ordering of agenda items, with agenda item 4 (Status of action items) being moved towards the end of the meeting.

### 3 Declaration of interests

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4. Declarations of interest were received from RAG members prior to the meeting (**Attachment B**). The RAG noted conflicts of interest which were declared by Dr Thomson, Mr Castle, Mr Papas, Mr Harris and Mr Toumazos for agenda items 5 (School shark review terms of reference), 6 (School shark review work plan) and 7 (Review of the school shark rebuilding strategy). As per requirements under *Fisheries Administration Paper No. 12*, these members

were absent from the meeting, and the remaining members of the RAG agreed that these members should be allowed to participate in discussions under agenda items 5, 6 and 7 but not in the formation of final advice or recommendations. The absent members joined the meeting at 10:15 am and were informed of this decision.

## **4 Updates from members**

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5. The AFMA member provided an update to the RAG on relevant issues since the last RAG teleconference held on 16 January 2020.
6. AFMA's response to the Covid-19 pandemic:
  - i. On 1 April 2020, AFMA announced that fishing levies would be waived for the remainder of 2020. Refunds will be issued for concession holders that have already paid. This development was positively received by industry.
  - ii. All AFMA offices have closed and staff are working remotely. This has created some challenges in the delivery of key functions and communications. Services are being delivered remotely with the use of available technology, including the use of remote monitoring tools in compliance operations.
7. The AFMA Commission met in March 2020 to consider total allowable catch (TAC) recommendations for Southern and Eastern Scalefish and Shark Fishery (SESSF). The recommendations from SEMAC and RAGs were adopted without change and the TACs have now been determined.
8. The 2020-21 SESSF fishing season commences on 1 May 2020. Minor changes made to concession conditions are outlined in a letter provided with the papers.
9. No further updates were received from members.

## **5 School shark review terms of reference**

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10. The AFMA member introduced the agenda item, noting:
  - i. School shark is only the second large-scale application of the close-kin mark recapture (CKMR) method to a commercially exploited species. The application of the method to Southern Bluefin tuna (SBT) was an iterative one over 5-6 years, with review at regular intervals by an expert steering committee.
  - ii. It is good practice to undertake an independent peer review, in addition to the usual RAG process, where the research is novel or complex, there is uncertainty in or conflicting scientific opinion, there are strong conflicts of interest and findings have substantial implications for future management decisions. The CKMR assessment for school shark meets a number of these. The RAG has acknowledged in past meetings that technical assessment of the CKMR method exceeds the current expertise of the RAG. Further, the findings of the CKMR assessment have substantial implications concerning the management of school shark as well as the broader use of the method for other SESSF species (e.g. blue-eye trevalla).
  - iii. The draft Terms of Reference (ToR) for the independent expert peer review of the CKMR assessment for school shark were circulated to members for comment prior to the meeting. The ToR have been developed by AFMA to be comprehensive and address the issues in question concerning the Cordue and CSIRO reports. The ToR also look to address some questions raised external to these reports, including those pertaining to the sampling regime and biological assumptions. The ToR are limited in their scope to the CKMR assessment for school shark.
  - iv. AFMA are seeking advice from the RAG on the draft ToR, the form of the review and potential candidates.

11. The Chair noted comments from Dr Thomson, Dr Guida and Dr Huveneers had been received prior to the meeting. The Chair invited members to comment on the draft ToR.
12. Dr Morison advised that he considered the ToR to be appropriate, noting an independent expert peer review is helpful when considering a new method.
13. Dr Knuckey suggested the ToR more explicitly include how the CKMR results (e.g. genetic sequencing data) are incorporated into the assessment model. Further, Dr Knuckey raised concerns that historical catch per unit effort (CPUE) data was unable to be explained by the assessment model. Dr Knuckey also noted that the CKMR assessment do not provide a depletion estimate which is problematic under the current Harvest Strategy which requires this to assess the status of the stock against reference points.
14. Dr Huveneers supported the comments made by Dr Knuckey. In addition, Dr Huveneers suggested the ToR should address any broader issues that are of concern that are not covered in the Cordue and CSIRO reports. The ToR should also address whether the CKMR assessment has the precision and accuracy required upon which to base management decisions.
15. Dr Thomson provided clarification regarding the concerns raised by Dr Knuckey. The population dynamics model uses kin pair data rather than an abundance time series. The two are integrated, the population dynamics model is inclusive of close-kin. Dr Thomson also noted that the productivity and abundance estimates are related so that if you get one wrong the other will adjust accordingly. Dr Thomson also suggested the ToR examine whether the TAC derived from the CKMR assessment meets the management objectives for school shark, noting that the TAC recommendation was not particularly conservative. Further work is required into how to turn CKMR results into management advice and noted she had proposed this work to FRDC.
16. Dr Thomson provided a summary of the alternate set of questions for the ToR that she provided to the RAG prior to the meeting, noting Dr Huveneers' had also provided edits. Dr Thomson noted that if the ToR stay as broad as currently drafted more than one expert will be required to undertake the review. The Chair noted the ToR will need to be finalised prior to identifying experts to undertake the review.
17. Mr Papas suggested the Cordue and CSIRO reports highlight the degree of uncertainty surrounding the CKMR assessment. He questioned whether the results of the CKMR assessment would be the same if performed by a different science provider. Mr Papas raised the concern that the uncertainty surrounding the assessment creates difficulties in making good decisions on the management of school shark. Mr Papas supported the ToR being broader than just resolving the issues covered in the Cordue and CSIRO reports.
18. Mr Harris supported the ToR being broader than just resolving the issues covered in the Cordue and CSIRO reports.
19. Mr Toumazos raised three key concerns for inclusion in the ToR:
  - i. As he has raised in previous meetings, the data sampling protocol should have included the whole historic area of the fishery, not just the current fishing footprint.
  - ii. As raised by Dr Knuckey, the assessment model is not able to explain the historical catch levels of school shark in the SESSF. He was concerned that the current CKMR method was not representing the whole remaining population.
  - iii. He supported the comments made by Dr Knuckey, for the ToR to include how the results from the CKMR study are incorporated into the assessment model.
20. Mr Toumazos agreed the ToR should also to cover the Cordue and CSIRO reports.
21. Mr Castle agreed with comments made by Mr Toumazos regarding data sampling protocols being weak and that sampling needed to cover a broader area, and suggested a research catch allowance should be explored as an option in the future, should sampling be expanded.

22. Dr Guida supported the comments made by Dr Huveneers and Dr Thomson, stating the ToR should focus on the issues covered in the Cordue and CSIRO reports and how the results of the CKMR assessment are incorporated into management, ensuring that an appropriate level of precaution is applied. Dr Guida highlighted the importance of completing the review quickly and getting appropriate management arrangements in place for school shark given its vulnerability from a conservation perspective.
23. The AFMA member noted Dr Guida's concerns regarding the timeline of the review however confidence in the CKMR method and assessment is underpinned by broader issues beyond what is included in the Cordue and CSIRO reports. Time should be taken now to address the broader issues, so that decisions can be made as to the management of school shark with confidence.
24. Ms Lawrence queried whether the ToR or report for the FRDC review are available. The AFMA member noted requests had been made, but that the FRDC had not shared the ToR or the identity of the reviewer for the FRDC review. AFMA noted FRDC had advised the outcomes of the review would be shared once completed.
25. Dr Thomson suggested the RAG adopt the alternate ToR she had provided with additions to be made to reflect comments by Dr Huveneers and other RAG members. The AFMA member advised that AFMA's preference is to retain the original draft ToR and incorporate comments made by RAG members. AFMA noted the importance of managing conflicts of interest effectively and transparently during the process of an independent expert peer review. Mr Toumazos echoed comments made by AFMA, as to the need for conflicts of interests to be managed. Dr Huveneers provided clarification to the RAG that his email provided examples of how the ToR could be modified and did not provide a comprehensive scope of what should be included in the ToR.
26. The AFMA member thanked members for their constructive comments and agreed to update the draft ToR and recirculate it to RAG members for their final comment within the coming week.

**Action Item 1 – AFMA to incorporate comments from SharkRAG into an updated draft terms of reference for circulation to SharkRAG members.**

27. The Chair asked the RAG for recommendations on who should be approached to complete the review.
28. The AFMA member noted the areas of expertise of a reviewer/s would be dependent on the scope of the ToR, and there may need to be multiple reviewers. AFMA noted suggestions for reviewers had been provided to AFMA which include members from the steering committee that advised on the SBT assessment. Required areas of expertise include geneticists, stock assessment scientists and statisticians.
29. The RAG agreed that there is a need for multiple reviewers to complete the review comprehensively and agreed to provide a list of potential reviewers out of session to AFMA.

**Action Item 2 – SharkRAG members to provide details of potential reviewers to AFMA out of session.**

## **6 School shark review work plan**

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30. The AFMA member introduced the agenda item and sought comments on the steps and timelines included in the draft review work plan that was provided to the RAG prior to the meeting.

31. The Chair invited RAG members to provide comments on the draft review work plan.
32. Dr Morison stated the steps of the work plan look sound however noted the time it will take to contact and get a response from potential reviewers is currently the best case scenario.
33. Dr Knuckey, Dr Thomson and Dr Guida agreed with comments made by Dr Morison. Dr Knuckey suggested a more realistic timeframe would be to add two to three months onto the process.
34. Dr Huveneers questioned whether there was intent to provide the results of the FRDC review to the reviewers and what would happen if a reviewer required a longer timeframe in which to complete the review. The AFMA member advised that AFMA have sought further information on the timing of the FRDC review, and are awaiting a response. The results of the FRDC review will be provided to the reviewers when available. AFMA agreed to provide an update to the RAG once the final outcomes of the FRDC review have been made available. It was also noted, that should a reviewer require more time, this would be considered, and depend on the circumstances. If acceptable, the timeframes may be extended.
35. Mr Castle questioned whether AFMA had the current resources to ensure this work is completed. The AFMA member noted the AFMA Commission had identified the school shark work as a priority and adequate resources will be allocated.
36. Mr Bromley emphasised that a best case scenario would result in two years of uncertainty while the review is undertaken and stressed it is a time critical process.

**Action Item 3 – AFMA to distribute report for the FRDC review to the RAG when available.**

37. The AFMA member addressed references to gummy shark in the paper, noting that the gummy shark assessment is due in 2020 and this work load should be considered when setting work plans. AFMA agreed the timeframes provided in the draft work plan were optimistic. AFMA noted the intention to have the review completed within the timeline, however if the availability of suitable reviewers did not match the timelines there would be flexibility. AFMA provided that an alternative process may need to be considered if suitable reviewers were unavailable. This could include narrowing the ToR and postponing some issues for later consideration.

## **7 Review of the school shark rebuilding strategy**

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38. The AFMA member introduced the agenda item for noting:
  - i. SEMAC met in February 2020 to discuss the planned review of the School Shark (*Galeorhinus galeus*) Stock Rebuilding Strategy which outlines management arrangements in place for school shark.
  - ii. SEMAC supported the formation of a sub-group to undertake a review of the strategy, which will be informed by the independent expert peer review of the CKMR assessment. The focus of the SEMAC sub-group is to review the effectiveness of management measures currently in place for school shark. Some key issues raised by stakeholders for review include the live release of school shark and the school shark to gummy shark ratio arrangements.
  - iii. The sub-group will meet shortly to decide what data is required for the review and after the data is acquired meet again to discuss the strategy. Consultation will be undertaken on any proposed changes.
  - iv. SharkRAG will be updated throughout the process.

39. The Chair invited RAG members to provide any comments.
40. Dr Knuckey suggested the strategy needs to reflect changes to the assessment approach and noted that the CKMR method does not provide a depletion estimate against which to assess the status of the stock against the reference points in the strategy. It was noted the use of the CKMR method can give a good indication of stock abundance over time however the strategy aims to build stock to a limit reference point and then a target reference point. Further, achieving these reference points may not be possible, given changing climatic and environmental conditions which can fundamentally change the dynamics of a fish stock.
41. Dr Thomson agreed the CKMR assessment does not give an estimate of depletion and the strategy needs to be updated to address this issue. It was noted school shark have been fished since the 1920s and parts of the stock have experienced damage to important breeding grounds which may affect the potential for rebuilding to previous levels.
42. Dr Huveneers noted that a review of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is currently underway and questioned whether this would affect the review of the strategy. The AFMA observer advised that AFMA were monitoring the review, noting it has been delayed to allow more time for comments to be provided.
43. Mr Papas questioned the RAG's involvement in the review process. The AFMA member advised that input from the RAG will be sought when appropriate.
44. Dr Guida and Mr Bromley supported comments made by Dr Thomson. Mr Bromley noted the difficulties in reviewing the strategy, particularly as there are uncertainties surrounding the status of the stock. Mr Bromley suggested that there is a need for someone with a deep understanding of the EPBC Act to be included on the SEMAC sub-group. Mr Bromley suggested the sub-group should be postponed until the results of the review are available for the sub-group to consider.
45. The AFMA member acknowledged uncertainties surrounding the change in methodology to using CKMR and not having a depletion estimate that aligns with requirements under the Commonwealth Harvest Strategy Policy. It was noted there is likely to be significant work required by the RAG to address this issue. The AFMA member noted however, the SEMAC sub-group would be focusing on the review of current management arrangements for school shark, and this issue will need to be addressed separate to the review.

## 8 Status of action items

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46. A consolidated list of outstanding action items from previous SharkRAG meetings (**Attachment C**) was circulated to the RAG prior to this meeting. The RAG noted the status of action items.

## 9 Other business

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47. The chair invited RAG members and participants to discuss any further business.
48. Dr Thomson noted that a school shark stock assessment for 2021 is not possible given there needs to be three years of close kin data prior to re-running the assessment. Dr Thomson pointed out that the timeline for the ongoing CKMR work for school shark, soon to be signed with AFMA, has the assessment update occurring in 2024. Ms Lawrence expressed concerns surrounding the ability of SEMAC to set appropriate TACs without a stock assessment and requested this be discussed at the next SEMAC meeting.

49. The RAG suggested this item to be placed on the agenda for further discussion at the next SharkRAG and SEMAC meetings.

**Action Item 4 – AFMA to include timing of the next school shark assessment on agendas for upcoming SharkRAG / SEMAC meetings**

## 10 Dates for 2020 meetings

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50. The AFMA member suggested an additional RAG will need to be held to discuss the draft findings of the school shark review around August 2020. It was also noted there will be a SharkRAG meeting in September/October then October/November to consider the upcoming gummy shark assessment. AFMA agreed to consult with RAG members on upcoming dates out of session.

**Signed (Chairperson):**

**Date:**

## Attachments

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**Attachment A:** SharkRAG 6 final agenda

**Attachment B:** Declarations of interest

**Attachment C:** Status of action items



Attachment A - SharkRAG 6 final agenda

**SharkRAG 6 Agenda**

<b>Date</b>	1 May 2020
<b>Time</b>	10:00 am to 1:00 pm (AEST – Qld, ACT, NSW, Tas, Vic) 9:30 am to 12:30 pm (ACST – SA)
<b>Location</b>	Teleconference
<b>Chair</b>	Sandy Morison, Chair
<b>SharkRAG members</b>	Natalie Couchman, AFMA Dr Julian Morison, Economics Member Dr Ian Knuckey, Scientific Member Dr Charlie Huveneers, Scientific Member Dr Robin Thomson, Scientific Member Jamie Papas, Industry Member Craig Harris, Industry Member Kyriakos Toumazos, Industry Member Leigh Castle, Industry Member Dr Leonardo Guida, Conservation Member
<b>Invited participants</b>	Ross Bromley, Southern Shark Industry Alliance
<b>Presenters</b>	Natalie Couchman, AFMA
<b>Observers</b>	Fiona Hill, AFMA James Woodhams, ABARES Anissa Lawrence, TierraMar Consulting Anna Willock, AFMA
<b>Executive officer</b>	Max Bayly, AFMA
<b>Apologies</b>	NA

<b>Agenda item</b>	<b>Purpose</b>	<b>Paper / presentation</b>	<b>Time (AEDT)</b>
Acknowledgement of country		Chair	5 mins
1. Welcome and apologies	For information	Chair	5 mins
2. Adoption of agenda	For action	Chair	5 mins
3. Declarations of interest	For action	Chair	30 mins
4. Updates from members	For information	Members	20 mins
5. School shark review terms of reference	For recommendation	Natalie Couchman	45 mins

<b>Agenda item</b>	<b>Purpose</b>	<b>Paper / presentation</b>	<b>Time (AEDT)</b>
6. School shark review work plan	For discussion	Natalie Couchman	15 mins
7. Review of the school shark rebuilding strategy	For information	Natalie Couchman	5 mins
8. Status of action items	For information	EO / Chair	15 mins
9. Other business	For discussion	Chair	10 mins
10. Dates for 2020 meetings	For decision	Chair	5 mins

## Attachment B – Declarations of interest

Member	Interest declared
Sandy Morison	<p>Director of Morison Aquatic Sciences.</p> <p>Chair of SharkRAG.</p> <p>Contracted by government departments, non-government agencies and companies for a range of fishery related matters including research and for MSC assessments of AFMA managed and other Australian and international fisheries.</p> <p>No pecuniary or other interest in the SESSF.</p>
Robin Thomson	<p>CSIRO, Assessment scientist. Acquiring funding for research purposes.</p>
Charlie Huveneers	<p>Associate Professor and research scientist. Potential interest in funding for research. No pecuniary interest or otherwise.</p>
Ian Knuckey	<p>Director Fishwell Consulting Pty Ltd.</p> <p>Involved in SESSF and GAB Fishery Independent Survey (FIS).</p> <p>Range of research interests in relation to South East fisheries including the GHAT, GABTF, SESSF and auto-longline sector. This includes the project on using EM data for estimating discards and collecting length information.</p> <p>Agent for Olfish Electronic Logbooks</p> <p>NPF RAG Chair, Scientific member on NORMAC. Provides research advice to various industry associations: SETFIA, GABIA and SSIA.</p>
Leigh Castle	<p>Tasmanian shark hook, scalefish hook and tuna minor line fisher. Owns SESSF quota and vessel statutory fishing rights. Has a declared interest in shark hook interests and RBC recommendations.</p>
Kyriakos Toumazos	<p>South Australia/Bass Strait shark fisher, boats fishing with hooks and gillnets. SESSF quota holder. Southern Rock Lobster Board CEO. Declared interests in RBCs.</p>
Jamie Papas	<p>Gillnet fisher and SFR holder.</p> <p>Board Director San Remo Fishermen's Co/Op</p>
Julian Morison	<p>Director, Kuti Co Pty Ltd – SA Pipi quota holder</p>

	<p>Director, BDO Advisory (SA) Pty Ltd - current contracts with SA &amp; Qld state governments collecting fisheries economic data</p> <p>Member, SA Snapper Management Advisory Committee (PIRSA)</p> <p>Economics member, Scallop Fishery Resource Assessment Group (AFMA)</p> <p>Member, Economics Working Group (AFMA)</p> <p>Member, Human Dimensions Research subprogram (FRDC)</p> <p>Principal &amp; co-investigator on several FRDC research projects</p>
Craig Harris	Gillnet fisher and SFR holder.
Leonardo Guida	Conservation member and lead shark conservation campaigner for the Australian Marine Conservation Society. No pecuniary interest or otherwise.
Natalie Couchman	AFMA member. No interest pecuniary or otherwise.
Max Bayly	AFMA EO. No interest pecuniary or otherwise.
Ross Bromley	<p>Principal of Girella Fisheries Services</p> <p>Engaged by Southern Shark Industry Alliance as project manager for Shark Industry Data Collection project (SIDaC) and Blue Eye Trevalla co-management</p> <p>Engaged to provide advice on various SESSF MSC accreditation projects</p> <p>Project manager of Western Orange Roughy Data Collection project (WORDaC)</p> <p>Provide advice to various fisheries on EPBC Act accreditation.</p>
James Woodhams	ABARES Senior Scientist. Potential interest in funding for research projects.
Fiona Hill	No interest pecuniary or otherwise
Anissa Lawrence	<p>Independent consultant. Director of TierraMar Consulting.</p> <p>Undertakes contracts for a number of Conservation NGOs, government departments, non-government agencies and the private sector on a range of fishery related matters.</p> <p>No pecuniary interest.</p> <p>President of the SEA LIFE Trust (ANZ).</p>

	Director of FISHI International.
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## Attachment C

• Complete/Redundant		• Underway		• Yet to start		• Need SESSFRAG advice	
Meeting & agenda item reference	No.	Description	Responsibility	Timeframe	Status		
SharkRAG 2 2016	1	For the next gummy shark assessment, the assessment scientist to investigate estimating selectivity separately for the three regional stocks and allowing it to be flexible in form. This may allow the differing availability function to be removed from the assessment.	CSIRO Assessment Scientist	In time for the next stock assessment.	To be actioned for the next stock assessment.		
SharkRAG 2 2016	2	For the next gummy shark assessment, SharkRAG to review how density dependence is incorporated in the model including in the context of the paper 'Population biology and dynamics of the gummy harvested off southern Australia' (Walker 2010).	CSIRO Assessment Scientist, SharkRAG	In time for the next stock assessment.	To be actioned for the next stock assessment.		
SharkRAG 2 2016	3	The School Shark Rebuilding Strategy to be updated to reflect research showing there is some genetic connectivity between Australian and New Zealand school shark stocks.	AFMA	2019	AFMA will undertake a review of the <i>School Shark (Galeorhinus galeus) Stock Rebuilding Strategy</i> this year. This will include updating information concerning latest research relevant to the species.		
SharkRAG 1 2018	3	AFMA to investigate removing elephant fish as a quota species in the SESSF	AFMA	TBC	A new harvest strategy is in the process of being developed for the SESSF to take into account the 2018 <i>Commonwealth Harvest Strategy Policy</i> . This		

					item will be considered as part of that process.
SharkRAG2 2018	1	Dr Thomson to liaise with Dr Braccini to investigate the availability of further vertebrate samples taken during surveys	Dr Thomson/ Dr Braccini/FAS	TBC	Samples may be with Dr Thomson (in samples supplied from AFMA). Funding required to sort through samples.
SharkRAG3 2018	10	Dr Thomson to consider including trawl and Danish seine CPUE as a sensitivity in the next gummy shark stock assessment.	Dr Thomson	In time for the next stock assessment.	To be actioned for the next stock assessment.
SharkRAG3 2018	15	Mr Macdonald to liaise with AAP to ensure they are using the same species list/codes as those used by fishers in e-logs.	Mr Macdonald	December 2018 meeting	Completed, confirmed at meeting with AAP on 5 December 2019.
SharkRAG3 2018	17	Dr Thomson to liaise with Dr Koopman to get the EM data analysis code for incorporating into the existing discard estimation process.	Dr Thomson	Before SESSFRAG February 2019	CSIRO have the code, needs to be incorporated into the discard process which is part of the SESSF contact between CSIRO and AFMA. Dr Thomson is unsure if there was funding for this aspect of the project.
SharkRAG3 2018	18	AFMA to develop proposal to do cross comparisons between EM retained length and industry collected lengths for verification and cost.	Mr Macdonald	Next SESSFRAG Meeting	AFMA to prepare paper for next SESSFRAG data meeting scheduled for August 2020.
SharkRAG3 2018	19	AFMA to provide the TAC recommendations paper and TAC calculation spreadsheet to RAG members and invited participants for information each year.	SharkRAG Executive Officer	December each year	The SESSF TAC recommendations paper is sent in late December each year. AFMA EO's will distribute this to RAG members and invited participants.
SharkRAG4 2018	21	Refer the question of conducting biennial collection of biological data for stock assessment to SESSFRAG February 2019 data meeting.	SESSFRAG	February 2019	To be referred to next appropriate SESSFRAG meeting.
SharkRAG4 2018	24	AFMA and SESSFRAG at its February 2019 meetings, investigate including baiting efficiency an additional field	AFMA and SESSFRAG	February 2019	To be referred to next appropriate SESSFRAG meeting.

		in logbooks for automatic longline vessels to be used for CPUE standardization			
SharkRAG4 2018	25	Dr Sporcic to add footnote to the CPUE Standardizations Document regarding the shallow water shots (2002-2005, and 2006-2012) in Tasmania, and the deeper water gillnet shots in South Australia, noting they have been investigated and verified.	Dr Sporcic	SharkRAG5	Completed.
SharkRAG4 2018	26	Dr Thomson to plot school shark exploitation rate for all gears combined, including error bars.	Dr Thomson	SharkRAG5	Advice received that this may not be feasible at this time.
SharkRAG4 2018	27	Dr Thomson to provide a detailed costing and data collection proposal for the continuation of Close Kin Mark Recapture for school shark.	Dr Thomson	SharkRAG5	Completed.
SharkRAG4 2018	28	Dr Thomson and Dr Huveneers to investigate any additional recreational catch reports available, including those which provide numbers of animals caught, and conversion these to weight.	Dr Thomson and Dr Huveneers	SharkRAG7	A draft report examining recreational fishing of school shark will be available for SharkRAG7.
SharkRAG4 2018	29	Mr Macdonald to investigate the RAG suggestion that high risk species identified through ERA should go to expert reference groups (e.g. AAD, Commonwealth Marine Mammal Working Group, IUCN shark reference group etc.) for consideration.	Mr Macdonald	SharkRAG5	To be discussed with managers / senior managers in the SESSF.
SharkRAG4 2018	30	Dr Huveneers and Dr Sporcic to work through the gillnet ERA results for sharks out of session.	Dr Huveneers and Dr Sporcic	SharkRAG5	Updated report received from Dr Sporcic.

SharkRAG4 2018	31	ERA working group to consider whether the 'hard to assess' species should be considered in level 2 ERA analysis noting the tiered assessments are no longer considered reliable for these species.	ERA working group	SharkRAG5	Completed, the ERA working group agreed to use ERA results to set TAC results for "difficult to assess" species
SharkRAG Teleconference 2020	1	AFMA to distribute information on the processes followed by SESSFRAG and information it considers as part of its annual review of data for SESSF species.	AFMA	February 2020	Completed, email correspondence sent by Mr Macdonald on 22 January 2020.
SharkRAG Teleconference 2020	2	AFMA to distribute the original close-kin mark recapture report to SharkRAG members	AFMA	February 2020	Completed, email correspondence sent by Mr Macdonald 22 January 2020.
SharkRAG Teleconference 2020	3	AFMA and CSIRO to prepare a summary table of assumptions that went into the original close-kin assessment model.	AFMA/CSIRO	Before October SharkRAG Meeting	AFMA and CSIRO to prepare paper for next SharkRAG meeting.
SESSFRAG Data 2019	5	The bSAFE2 results and updated methodology to be taken to the individual SESSF resource assessment groups for consideration	AFMA / SharkRAG	SharkRAG 7	To be considered at SharkRAG 7.
SESSFRAG Data 2019	13	Seek advice from SharkRAG to update the SIDaC data collection plan to include : <ul style="list-style-type: none"> <li>the collection of total and partial lengths of school and gummy shark particularly any school sharks larger than 160cm total length (100cm partial length). Gummy shark over 160 TL and 100cm PAR are also important;</li> <li>collection of gummy and school shark samples from automatic</li> </ul>	SharkRAG	SharkRAG Meeting	<ul style="list-style-type: none"> <li>The implementation of this change was discussed with the SIDaC Program on 8 April 2020. AFMA to discuss further with CSIRO prior to SharkRAG consideration.</li> <li>To be considered by SharkRAG at the next meeting or out of session.</li> </ul>

		longline vessels.			
SESSFRAG Data 2019	14	AFMA to confer with Ian Knuckey and Robin Thomson to determine the sampling regime for discard lengths to support future discard estimates and, if further advice is needed, seek SharkRAG advice.	AFMA	Prior to the November 2019 SharkRAG meeting	To be considered by SharkRAG at the next meeting or out of session.
SESSFRAG Data 2019	15	SERAG and SharkRAG to consider the data for the remaining rebuilding species that were not discussed during the SESSFRAG data meeting.	SharkRAG	November 2019 SharkRAG meeting	SharkRAG has not met to consider the school shark review, however a SEMAC subgroup will be convened in 2020 to discuss management arrangements in place under the strategy and will then consider the relevant data.
SharkRAG 6	1	AFMA to incorporate comments from SharkRAG into an updated draft terms of reference for circulation to SharkRAG members	AFMA	As soon as possible	Completed, revised terms of reference sent to SharkRAG 08 May, final comments received from SharkRAG members 15 May.
SharkRAG 6	2	SharkRAG members to provide details of potential reviewers to AFMA out of session	SharkRAG	As soon as possible	Underway, potential reviewers received from Dr Huveneers and Dr Thomson.
SharkRAG 6	3	AFMA to distribute report for the FRDC review to the RAG when available.	AFMA / EO	When available	
SharkRAG 6	4	AFMA to include timing of the next school shark assessment on agendas for upcoming SharkRAG/SEMAC meetings	AFMA / EO	Next SharkRAG/SEMAC meetings	Agenda item added to SharkRAG 7