



Australian Government

Australian Fisheries Management Authority

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

Meeting minutes

Date: 12 February 2018

Holiday Inn, Melbourne Airport

Attendees

Name	Membership
Mr Sandy Morison	Chair
Mr Robert Curtotti	Economic member
Mr Brodie Macdonald	AFMA member
Dr Brendan Kelaher	Scientific member
Dr Ian Knuckey	Scientific member
Dr Robin Thomson	Scientific member
Dr Charlie Huveneers	Scientific member
Mr Leigh Castle	Industry member
Mr David Stone	Industry member
Mr Kyri Toumazos	Industry member
Ms Anissa Lawrence	Conservation member (via telephone)
Dr Miriana Sporcic	Invited participant – scientific (CSIRO)
Mr Ross Bromley	Industry Observer
Ms Andrea Bath	ABARES Observer
Mr James Woodhams	ABARES Observer (via telephone)
Dr Nastaran Mazloumi	ABARES Observer (via telephone)
Mr George Day	AFMA Observer
Mr Ryan Keightley	AFMA Executive officer

Meeting Minutes

1 Preliminaries

1.1 Introduction and apologies

The Chair opened the meeting and welcomed Members, Invited Participants and Observers. Members were advised that the meeting was being recorded to assist with the preparation of the meeting minutes.

1.2 Adoption of Agenda

The agenda at **Attachment A** was adopted by the RAG as final, noting the late addition of two Agenda Items to other business if time allows. Mr Stone noted frustration that some Agenda papers had not been circulated to allow sufficient time to consider and consult on prior to the meeting.

1.3 Declaration of interests

Members reviewed and updated the Declarations of Interest included at **Attachment B**.

The Chair asked participants to declare any interests in any Agenda Item to be considered by the RAG. Such interests were declared by:

- Dr Sporcic, research interests, in particular stock assessment and research priorities agenda items.

- Dr Thomson, research interests, in particular in stock assessment, close kin and research priorities agenda items.
- Robert Curtotti, research interests, in particular the research priorities agenda item
- Andrea Bath, research interests, in particular the research priorities agenda item
- James Woodhams, research interests, in particular the research priorities agenda item
- Nastaran Mazloumi, research interests
- Ian Knuckey, research interests, in particular the research priorities agenda item any discussion regarding data collection and his current electronic monitoring discard and length measurement project.
- Charlie Huveneers, research interests, in particular the research priorities agenda item.
- David Stone, Industry interests in most items through his role representing gillnet and hook industry through the Sustainable Shark Fishing Industry Association.
- Kyri Toumazos, Industry interests in most items as a holder of concessions in the Southern and Eastern Scalefish and Shark Fishery (SESSF).
- Leigh Castle, Industry interests in most items as a holder of concessions in the SESSF.
- Ross Bromley, research interests as director of Girella Fisheries Services and contracted by Atlantis Fisheries Consulting Group.

Each participant declaring an interest left the meeting in turn while the RAG considered their interests. In each case, the RAG noted the conflict of interest and, recognising the participant's knowledge and valuable contribution to the discussions, agreed that the participants should participate in all Agenda Items, but not make any recommendations for items for which there was a declared interest.

1.4 Actions arising

The RAG was updated on the status of remaining actions arising from previous meetings as per the tabled paper (**Attachment C**). Items discussed are outlined as follows:

Action item 1 SharkRAG 1 2017 - AFMA to consult with e-log providers on whether any there are changes required to the logbook schema before 1 July 2018.

The RAG recommended that AFMA ensure this item is actioned well prior to the 1 July 2018 mandatory e-log deadline to make the roll out process as smooth as possible. Dr Knuckey noted that e-logs are capable of, and currently do, collect additional data (e.g. wind, sea state, crew information ect) that does not get sent to AFMA (and no suggestion that it should get sent to AFMA). The RAG did note however that AFMA at some point of time should consider how to incorporate any additional data collected from e-logs into a useable database for standardization and stock assessment purposes.

Action item 3 SharkRAG 1 2017 - Industry members to encourage Industry cooperation with AFMAs Observer team.

Mr Stone stated that there have been no major issues reported back from his Industry members, but reinforced the need for AFMA to give operators suitable notice where possible. Mr Toumazos suggested that it would be useful for Industry be given a longer term plan for observer placements (e.g. call each operator at the start of the year and notify that would likely need to carry and observer in March and July).

Action item 1 – AFMA to report back Industry's comments on observer placements to the AFMA Observer Program, including providing suitable notice to operators and the suggestion to provide operators a longer term plan for observer placements each year.

Action item 12 SharkRAG 1 2017 - AFMA to revise the gillnet ERA species list classifications based on their contribution to GVP.

Mr Macdonald and Dr Sporcic noted that this item was discussed intersessionally, and there was a decision not to revise the species list using GVP information as it would require a lot of work for very little benefit.

2 Elephant fish

2.1 Elephant fish assessment and RBC recommendation

The Chair opened the agenda item, noting that at SharkRAG 1 2017, the RAG recommended that a tier 4 model excluding discards be conducted as it had concerns on whether the model including discards was still a reliable index of abundance. Dr Sporcic presented the two elephant fish tier 4 models, one including discards and one excluding discards in the CPUE series. These generated RBC estimates of 469 t and 293 t respectively.

The RAG discussed concerns about the inclusion of discards in the model, and noted the following issues as identified in the *Draft Tier 4 assessments for selected SESSF shark species (data to 2016)* paper:

- The tier 4 method used to adjust CPUE to account for discarding assumes that a portion of each shot of elephant fish catch is discarded. If a significant portion of shots of elephant fish catch are 100 per cent discarded, this assumption is violated and the adjustment could lead to a biased CPUE because catches that were entirely discarded, contributed to, and inflated, the estimated discard rate, but did not contribute to the standardized CPUE.
- Once discard rates become greater than 0.5 then more fish are discarded than landed. As the discard rate increases, the multiplier effect this has increases in a non-linear fashion. Above a discard rate of approximately 0.6-0.65 the risk of the total catches being biased high by the inclusion of discards will increase. As the 2015 and 2016 elephant fish discard rates are estimated to be 0.75, the RAG should consider whether or not the inclusion of discards into the CPUE and the calculation of the RBC can be considered valid.

The RAG questioned whether discards would be deducted from the RBC during the TAC setting process if the assessment model excluding discards was accepted, noting this would result in a prohibitively low TAC. Mr Day explained that previously discards have not been deducted when they have not been included in the CPUE series, but it has been noted that C^{TARG} in the assessment includes discards. The RAG noted this will need to be considered more broadly by SESSFRAG, but suggested it would be hard to justify not deducting discards from the elephant fish RBC if they are included in C^{TARG} .

The RAG noted and discussed an action item from SEMAC in January 2017 regarding the application of discount factors, and whether they can be moderated for elephant fish noting a level of protection applied through closures and management measures for school and gummy shark. The RAG noted that it could consider this, but would need more detailed consideration of catches by depth and the likely level of protection afforded through spatial closures. It was agreed that this should be considered more broadly when the SESSF Harvest Strategy is reviewed following the release of the revised Harvest Strategy Policy and Guidelines. Mr Toumazos added that when the Harvest Strategy is reviewed there should be consideration of including provisions for longer term MYTACs (5-10 years).

The RAG considered that neither Tier 4 assessment presented (including or excluding discards) were suitable for providing RBC advice. The RAG rejected the assessments because of concerns about the:

- lack of a recent and reference period discard information, and how discard rates are estimated
- ability to factor discarding appropriately into CPUE
- uncertain estimates of recreational catch, which are a significant proportion of either RBC.

The RAG felt that in the application of either Tier 4 method, a prohibitively low TAC would result that would be driven by the assumptions about discards and recreational catch, whereas both CPUE series presented showed no signs of concern.

The RAG felt that it did not have any concerns about stock status.

The RAG recommended maintaining the TAC at the current level (114 tonnes) until a better method of assessment of this stock could be agreed, noting that elephant fish is not targeted and is not a key economic driver of the fishery. The RAG recommended undercatch and overcatch provisions of 10 per cent.

3 School shark

3.1 Close Kin project results and mini assessment

Dr Thomson opened the item and presented a refresher on the close kin mark recapture (CKMR) method. The RAG expressed its appreciation for the refresher, with members noting that it was the best presentation the RAG has seen explaining the CKMR process.

Dr Thomson presented an update on the preliminary close kin results for school shark and the draft *Preliminary close kin modelling for school shark in the SESSF* report. Dr Thomson emphasised that the RAG should not consider or provide any recommendations based on the results in this report as the modelling does not include all data (as it was not available), confidence intervals for parameters have yet to be estimated and the model structure needs to be improved. The RAG did note however, that based on the data analysed to date (approximately half), it appears that the project is on track to find enough kin pairs (50+) to provide a robust assessment when the work is completed.

Dr Thomson explained that a number of improvements will be made before the next assessment, as follows:

- *Constraints on recruitment.* Future versions of this model will attempt to couple recruitment with pup production.
- *Full model.* The close kin data will be incorporated into the full stock assessment model. The close kin model presented avoids many of the complexities of the full model (does not include CPUE) and was used as an initial exploration tool. Will continue to work on this initial model before incorporation into the full stock assessment.
- *Sperm storage:* future versions of the model will attempt to take better account of the storage of sperm by females so that multiple pupping events can result from a single mating event. This affects the estimation of male survival.

- *Bigger sample size*: the model presented here is based on half the target sample size and therefore includes relatively few kin.
- *More haplotypes*: instead of sequencing only the control region of the mitochondrial DNA, the full mito-genome will be sequenced. This will increase the number of haplotypes and therefore the power of the data to discriminate maternal from paternal half sibling pairs (HSPs).
- *Ageing*: ageing for younger sharks was found to be sufficiently inaccurate to warrant modelling of aging error for all ages. Sensitivity to the assumption for older sharks that bands are laid down at an average rate of 0.36 bands per year will also be examined.
- *Separating Parent Offspring Pairs (POPs) from Full Offspring Pairs (FSPs)*: Age data provided relatively clear information on which kin pairs were FSPs and which were POPs.
- *Length frequencies*: more length frequency data could be incorporated into the models.
- *Discard rates*: discards have not been considered in the school shark stock assessment model in the past because discards have been low. This assumption will need to be revisited.
- *Length of close kin sample*: the close kin model does not, directly, use length information from the close kin sample (there are issues with how different samplers measured length that need to be fixed), however, fecundity is likely to be more closely related to length than to age therefore it would be more accurate to use length as well as age in the model.
- *Sensitivities*: a range of sensitivity tests are needed.
- *More complete reporting*: future versions of this report will contain a more complete description of the model used, and of the quality control procedures used to identify useable loci and samples, and of the kin finding procedures.
- *Pups*: No future sequencing work is planned as part of this project, but any future school shark close kin work might include the DNA from the Tasmanian pups to examine the age intervals using the more powerful sequencing technique associated statistical routines that were developed during of the present study.

The RAG questioned whether all of this work is achievable to deliver a stock assessment at the September/October 2018 meeting. Dr Thomson noted that all this work, with perhaps the exception of the length frequencies, is achievable and is funded under the current project.

The RAG noted the delay is frustrating for Industry and sympathised, however acknowledged the large amount of good work that has been undertaken to date with this new technique, and was pleased to hear these issues are solvable within project funding for a stock assessment in late 2018. Dr Knuckey suggested that it would be useful to have a fall-back option (e.g. completed mini model) in case a full stock assessment is not able to be completed by late 2018

3.2 School shark RBC/TAC recommendation

The Chair questioned whether there is sufficient evidence that can allow the RAG to make a TAC recommendation that differs from the status quo. Mr Toumazos expressed Industry's frustration that this work has been delayed again, noting that in his knowledge of the last 20 years, this is the best he has seen the school shark stock on the water. He said under the status quo, in is not economically viable to fish in South Australia under the current management arrangements as

operators have to steam excessive distances to avoid school shark to catch their gummy shark quota.

The RAG discussed whether there was any scope to increase the incidental bycatch TAC until there is a robust assessment for school shark, noting it is increasingly hard to avoid as the stock rebuilds. The RAG noted that the incidental catch TAC was based off catch projections to allow rebuilding within a biologically reasonable timeframe, and should not be increased unless there was evidence presented to the RAG that supported such a change.

Noting that the information presented to the RAG did not provide any indicators or information to make an updated recommendation, the RAG recommended maintaining the current incidental catch TAC of 215 tonnes, with no allowances for undercatch and overcatch. The RAG was sympathetic to Industry, particularly noting that as the stock rebuilds, it is harder to adhere to the management arrangements in place. The Chair further suggested that, given the novelty of the CKMR approach, that consideration be given to holding an additional RAG meeting to be held mid-year, to make it more likely that it was in a position to agree to a full stock assessment in late 2018.

3.3 Review of school shark management measures

Given that no additional information on stock status was available, the RAG could not recommend changes to any of the current management measures in place to constrain school shark catches (e.g. requirement to release all live school shark, and the school to gummy shark landings ratio).

4 Presentations

4.1 ABARES Economic Survey

Mr Curtotti presented on the Gillnet Hook and Trap Economic indicators report for 2014-15, explaining that ABARES undertake these surveys for major fisheries with the purpose to monitor economic performance of fisheries, assess the effectiveness of management arrangements and guide future management of the fisheries.

The RAG was informed that the data is gathered voluntarily from Industry through field surveys and participation has been low recently. Mr Curtotti noted that data on profit and loss statements, capital inventory, boat and SFR values and crew characteristics are collected through the surveys, and the following economic indicators are examined in each report:

- Financial performance
- Net economic return (NER)
- Productivity
- Terms of trade
- Management costs

Mr Curtotti presented results as follows:

- The financial boat level performance has been improving since 2013-14, however is still negative (-\$9 152). Mr Toumazos suggested that there was a shift in the Industry towards fishing companies, and it can be hard to get information in the companies down to the boat level, so it would be useful for the survey to be adapted to capture this.
- Net economic returns (NER) of the fishery has been negative for many years now, but it is predicted to have improved to positive NER in 16-17. This will be confirmed with the next survey due in 2018 to cover 2015-16 and 2016-17.
- The fishery's GVP is trending up in the last few years, but profitability is still negative.

- Total Factor Productivity shows an increase in productivity, suggesting operators are adjusting to management arrangements in the fishery.
- Terms of trade (market conditions) are relatively stable. The output price index (species' price) and input prices index are increasing.
- Management costs per active boat have been stable at around \$32,000, however management cost as a percentage of GVP are trending down.

The RAG discussed that we're not seeing profits from quota owners (investors), who are missing the costs of fishing, but reaping the benefit of increasing CPUE. It was noted that there has been a shift in Industry makeup towards fishers catching fish for quota owners, rather than owning portions of quota for themselves.

Mr Curtotti suggested there are some opportunities to improve surveys in future as follows:

- understanding drivers of latency
- decomposing the effect of management arrangement on NER.
- Separate survey according gillnet and hooks
- Improve sample size

The RAG noted it is important future surveys are representative of the fishery (proportion of catch is represented by surveyed boats), and there is need to foster the relationship between ABARES and Industry to assist in increasing participation, particularly those larger parts of Industry.

5 Research

5.1 2019-20 GHAT research priorities

The Chair introduced the item, reminding participants who have declared interests should not participate in discussions and recommendations where applicable.

The Chair ran through the SESSF Annual Research Statement for 2019-20, and the RAG commented on the following research items:

Research title	SharkRAG comment
Post-release survival rates of gummy shark	The RAG agreed that the level of discarding is very low, and suggested the item is no longer a priority and can be removed.
Post-release survival rates of school shark	The RAG suggested the item be changed to a low priority pending the 2018 stock assessment.
Review of Australian sea lion science	The RAG suggested this is not a RAG priority and would belong as an item through the Commonwealth Marine Mammal Working Group. The RAG further noted that given the conservation status of Australian sea lions which is unlikely to change, there would be little benefit of reviewing the science to the fishers.
Identification of school shark nursery areas in South Australia	Noting the project is well underway, the RAG suggested removing this item. Dr Huveneers gave an update of the current project. <ul style="list-style-type: none"> • Analysis of vertebrae elemental chemistry reveals annual variation in pupping areas, with results suggesting single pupping areas for some cohorts, while other cohorts originated from different pupping areas. • Movement patterns of pregnant females (validated through echosounder) has been investigated for two years using pop-up satellite tags. Results support findings from the elemental chemistry study suggesting changes in the use of pupping areas between

Research title	SharkRAG comment
	years. In one year, all pregnant females remained within South Australia throughout the pupping season. The following year, several pregnant females swam to Tasmania and one to New Zealand.
Strengthening the Tier 1 Gummy Shark assessment	The RAG supported this occurring <u>before</u> the 2019 assessment, noting that this does not fit the timeframe of 2019-20 research priorities. The RAG suggested keep the item as a priority and raise it to high. As such, the RAG suggested that Dr Huveneers and Dr Thomson undertake a scoping exercise and review of Walker (2010) to determine the costs and see if this work can be done in early 2019.
Updating knowledge of key species biology	The RAG suggested that this is a low priority for shark species.
Multi-species fisheries: harvest strategy implications of maximising economic yield and implementation options for Commonwealth fisheries, with a focus on the Southern and Eastern Scalefish and Shark Fishery (SESSF)	The RAG asked that the action item from the GHAT data working group in 2017 to explore ' <i>Biennial biological data collection in the GHAT</i> ' be considered as part of the this project.

While not a research priority, the RAG recommended that AFMA investigate removal of elephant fish as a quota species as a priority.

Action item 2 – In relation to the ‘Strengthening the Tier 1 Gummy Shark assessment ‘ research priority, Dr Huveneers and Dr Thomson to undertake a scoping exercise and review of Walker (2010) to determine the costs if this work can be done in early 2019 prior to the Tier 1 assessment.

Action item 3 – AFMA to investigate removing elephant fish as a quota species in the SESSF.

6 Other business and close of meeting

6.1 AFMA Seabird Strategy

Mr Macdonald introduced the item noting, it was provided late, and suggested that the RAG provide comments out of session.

6.2 Recreational and indigenous members on RAGs

Mr Macdonald introduced the item noting it was provided late, and suggested that the RAG provide comments out of session before the 9 March deadline outlined in the letter.

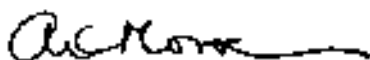
6.3 Other business and meeting close

The Chair thanked participants for valuable input and closed the meeting at 5:40pm.

Table 1: Actions arising from SharkRAG 1 2017.

Action	Agenda item	Description	Responsibility
1	1.4	AFMA to report back Industry's comments on observer placements to the AFMA Observer Program, including providing suitable notice to operators and the suggestion to provide operators a longer term plan for observer placements each year.	AFMA
2	5.1	In relation to the 'Strengthening the Tier 1 Gummy Shark assessment' research priority, Dr Huveneers and Dr Thomson to undertake a scoping exercise and review of Walker (2010) to determine the costs if this work can be done in early 2019 prior to the Tier 1 assessment.	Dr Huveneers and Dr Thomson
3	5.1	AFMA to investigate removing elephant fish as a quota species in the SESSF.	AFMA

Signed (Chairperson):



Date: 21 March 2018

Attachments

Attachment A: SharkRAG 1 2018 final agenda

Attachment B: Declarations of interest

Attachment C: Action item status

Shark Resource Assessment Group (SharkRAG) Meeting 1 2018

Draft Agenda – 12 February 2018

Holiday Inn Melbourne Airport

No.	Item	Responsible	Time
1	Preliminaries		9:00 am
1.1	Welcome and apologies	Chair	Information
1.2	Acceptance of agenda	Chair	Action
1.3	Declarations of interest	Chair	Action
1.4	Status of actions arising	AFMA member	Action
2	Elephant fish		9:45 am
2.1	Elephant fish assessment and RBC recommendation	CSIRO	Discussion
	Morning tea		10:15am
3	School shark		10:30 am
3.1	Close kin project results	CSIRO	Discussion
3.2	Mini assessment model and RBC/TAC recommendation	CSIRO	Discussion
	Lunch		12:30 pm
3	School shark continued		1:15 pm
3.3	Review of school shark management measures	AFMA member	Discussion
4	Presentations		2:30 pm
4.3	ABARES Economic Survey	ABARES	Information
	Afternoon tea		3:15 pm
5	Research		3:30 pm
5.1	2019-20 GHAT research priorities	AFMA member	Discussion
6	Other business and close of meeting		5:00 pm
6.1	AFMA Seabird Strategy	AFMA member	
6.2	Recreational and indigenous members on RAGs	AFMA member	
6.3	Other business (as required)	Chair	Discussion
6.4	Review of meeting action items, next meeting and close	EO/Chair	Discussion

Attachment B – Register of interests

Member	Interest declared
Sandy Morison	<p>Director of Morison Aquatic Sciences.</p> <p>Chair of SharkRAG, SERAG and the Tropical Rock Lobster Working Group.</p> <p>Scientific member on SEMAC.</p> <p>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>
Brendan Kelaher	<p>Scallop Resource Assessment Group Chair and Scallop Management Advisory Committee member. No other interests declared.</p>
Robin Thomson	<p>CSIRO, Assessment scientist. Acquiring funding for research purposes. PI on data services contract and close kin project for school shark.</p>
Charlie Huveneers	<p>Senior lecturer and research scientist. Potential interest in funding for research. No pecuniary interest or otherwise.</p>
<p>Ian Knuckey</p> <p>* A full list of positions, current/recent project and funding, and current/recent clients was provided to the RAG in addition to these specific to SharkRAG</p>	<p>Director Fishwell Consulting Pty Ltd.</p> <p>Director – Olrac Australia (Electronic logbooks)</p> <p>Range of research interests and research projects in relation to South East fisheries particularly in the SESSF and GABTF. Involved in SESSF and GAB Fishery Independent Surveys.</p> <p>NPFRAG and TRLRAG Chair, Scientific member on NORMAC and GABRAG. Invited Participant of SEMAC and SERAG. Provides research advice to various industry associations, including Atlantis Fisheries Consulting Group, SETFIA, GABIA and SSIA.</p>
David Stone	<p>Executive Officer for Sustainable Shark Fishing Industry Inc. Declared interests in representing hook and gillnet industry member interests and in pursuing research for dolphin acoustic mitigation technology, and has a proposal to FRDC seeking funding. SESSF RAG observer. Declared interest in RBCs.</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>
Kyri 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>
Anissa Lawrence	<p>Independent consultant. Director of TierraMar consulting.</p> <p>Conservation member on SEMAC.</p> <p>Undertakes environmental work with Southern Shark Industry Alliance on an ad-hoc basis. Undertakes contracts for a number of Conservation NGOs, government departments, non-government agencies on a range of fishery related matters. Provides environmental advice to industry associations. No pecuniary interest.</p> <p>President of the SEA LIFE Trust (ANZ).</p> <p>Director of FISHI International.</p>
Robert Curtotti	<p>No interests, pecuniary or otherwise.</p>

Brodie Macdonald	AFMA member. No interest pecuniary or otherwise.
Ryan Keightley	AFMA EO. No interest pecuniary or otherwise.
Invited Participant	Interest declared
Miriana Sporic	CSIRO, Assessment scientist. A general interest in acquiring funding for research purposes. No interest, pecuniary or otherwise.
Observers	Interest declared
James Woodhams	ABARES. Potential interest in funding for research. No interests, pecuniary or otherwise.
Nastaran Mazlumi	ABARES. Potential interest in funding for research. No interests, pecuniary or otherwise.
Andrea Bath	ABARES. Potential interest in funding for research. No interests, pecuniary or otherwise.
Ross Bromley	Undertakes contracts as an independent consultant.
George Day	AFMA. No interest pecuniary or otherwise.

Agenda item 1.4 Actions arising

Purpose: To inform the RAG of the action taken with respect to business arising from previous SharkRAG meetings.

SharkRAG 2 2016

No	Action item	Member to action	Status
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	Ongoing – to be actioned for the 2019 stock assessment.
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, SharkRAG	Ongoing – to be actioned for the 2019 stock assessment.
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	Ongoing – AFMA will update the School Shark Rebuilding Strategy following the results of the Close Kin Project and subsequent stock assessment.

GHAT Data Working Group March 2017

No	Action item	Member to action	Status
1	David Stone/Les Scott to develop and trial proposals for industry based data collection programs in the gillnet and longline fisheries. Any proposal for an alternative data collection program should provide evidence of an ability to collect the requisite biological (length/frequency, sex and/or otolith/vertebrae) data.	Industry	Complete – Discussed at SharkRAG 1 2017.
2	Robin Thomson to investigate the statistical implications of conducting biennial collection of biological data for the GHAT (subject to funding).	Robin Thomson	Ongoing – potentially a reasonably large simulation study/MSE and may require funding. To be discussed as a Research Priority.

SharkRAG 1 2017

No	Action item	Member to action	Status
1	AFMA to consult with e-log providers on whether any there are changes required to the logbook schema before 1 July 2018.	AFMA Member	In progress – AFMA are consulting internally to ensure any changes are implemented prior to 1 July 2018.

No	Action item	Member to action	Status
2	AFMA, in consultation with Dr Knuckey and CSIRO, to find a more appropriate location for the released alive field outside of the discard code section of logbooks so that the discard reason is recorded separately from the condition of any discarded fish. AFMA to also ensure that this additional field is transferred to CSIRO with all other logbook data.	AFMA Member	In progress – AFMA are consulting internally to ensure any changes are implemented prior to 1 July 2018.
3	Industry members to encourage Industry cooperation with AFMA's Observer team.	Industry Members	Ongoing – Industry members to update at meeting
4	Dr Sporcic to include GAB trawl in the 'trawl' CPUE series for the shark species.	Dr Sporcic	Complete – GAB trawl data is included in CPUE standardizations.
5	AFMA to upload the SESSFRAG breakout rule decision tree to the SharkRAG Govdex site.	AFMA Member	Complete – uploaded to the 'Research Papers' tab on Govdex.
6	Dr Sporcic to update the captions in the Tier 4 Assessment document to reduce ambiguity.	Dr Sporcic	Complete – presented at meeting.
7	Dr Sporcic to rerun the elephant fish Tier 4 Assessment without discards, with a target reference point of 40 per cent of unfished biomass and including recreational catch estimates, for consideration by SharkRAG at its next meeting.	Dr Sporcic	Complete – presented at meeting.
8	Refer the issue to SESSFRAG for it to consider how to deal with CPUE for species with high levels of discarding (large proportion of 100% discarded shots).	SESSFRAG	Ongoing – referred to SESSFRAG for mid-2018 meeting.
9	AFMA to investigate potential targeting of school shark.	AFMA member	In progress – AFMA management are investigating potential targeting of school shark.
10	AFMA to include gummy shark catch next to school shark catch in the next 'school shark catches by vessel' table to indicate boat level ratio.	AFMA member	Complete – see Agenda Item 3.3.
11	AFMA to write to concession holders advising of an updated timeline for close kin results, the mini assessment and subsequent updated tier 1 assessment.	AFMA member	In progress – AFMA are working with CSIRO on getting a revised timeline for the finalisation of the close-kin work and resultant assessment, and will write to industry with this post the March Commission meeting, at which it will consider advice from SEMAC.
12	AFMA to revise the gillnet ERA species list classifications based on their contribution to GVP.	AFMA member	Removed – a decision was made not to revise the species list using GVP information as it would require a lot of work for very little benefit.