



Australian Government

Australian Fisheries Management Authority

Shark Resource Assessment Group (SharkRAG)

Meeting 2 2023

Meeting minutes

4 December 2023

Agenda item 1. Preliminaries

1.1 Welcome and apologies

1. The Chair opened the meeting at 0903 hrs with an Acknowledgement of Country and welcomed members, invited participants and observers.
2. Attendees noted that the meeting was being recorded for the purposes of taking minutes.

Attendees	Membership
Mr. Sandy Morison	Chair
Ms. Michelle Henriksen	Executive Officer
Dr. Lara Ainley	AFMA member
Dr. Robin Thomson	Scientific member
Dr. Andrew Penney	Scientific member
Mr. Kyriakos Toumazos	Industry member
Mr. Jamie Papas	Industry member
Mr. Craig Harris	Industry member
Mr. Leigh Castle	Industry member
Ms. Anissa Lawrence	Conservation member
Dr. Julian Morison	Economic member
Dr. Charlie Huveneers	Scientific member
Apologies	Membership
Dr. Nick Hill	CSIRO ¹
Invited Participants	Organisation
Dr. Miriana Sporcic	CSIRO
Mr. Ross Bromley	SSIA ²
Ms Alice McDonald	AFMA
Dr. Karen Evans	CSIRO

¹ Commonwealth Scientific and Industrial Research Organisation

² Southern Shark Industry Association

Observers	Organisation
Mr. James Woodhams	ABARES ³
Mr. Kurt Davis	ABARES
Mr. Dan Corrie	AFMA
Ms. Kiran Jot	AFMA
Ms. Cate Coddington	AFMA

1.2 Declarations of interest

3. The Chair invited SharkRAG members and attendees to discuss any declarations of interest.
4. SharkRAG members and attendees followed the declarations of interest procedure as outlined in [Fisheries Administration Paper 12](#), updating the register of interest at [Attachment A](#).
5. The following conflicts of interest were declared with specific agenda items:
 - a. For industry representative for *Agenda Item 4. RBC advice for all shark species*
 - b. For research providers for *Agenda Item 9. Research priorities*
6. SharkRAG members agreed, consistent with the approach taken in previous meetings, that members or attendees with conflicts of interests were welcome to participate in discussions but not in the formulation of advice, recommendations or decisions.

1.3 Adoption of agenda

7. SharkRAG adopted the draft agenda ([Attachment B](#)) as final.

1.4 Minutes of previous meeting

8. SharkRAG noted that the minutes of the SharkRAG meeting of October 2023 are available on the [AFMA website](#).

1.5 Actions arising from previous meetings

9. SharkRAG noted the action items from previous meetings and the updates provided by the AFMA member at [Attachment C](#).
10. SharkRAG noted that a number of actions have now been completed and others to be discussed within upcoming agenda items during the meeting.

³ Australian Bureau of Agriculture and Economics Research

11. *Action item 8 and 9 “SIDaC⁴ to look at feasibility of including saw shark species composition in their data program. AFMA to consider observer data including trawl data in the saw shark summary table for SharkRAG.*
 - a. SharkRAG noted this action item has been long standing and agreed to update the intent of the action item to involve exploring alternative methods for saw shark species data composition.
12. A list of action items established at this meeting are listed in [Attachment D](#).

Agenda item 2. Climate change and ecosystem indicators

13. Ms Alice McDonald presented on the climate change and ecosystem indicators and status report for the gillnet, hook and trap (GHAT) fishery. SharkRAG participants noted the following key points:
 - a. The climate adaptation program has been introduced as a standing agenda item at resource assessment groups (RAGs) and management advisory committees (MACs) across multiple fisheries. AFMA plans to incorporate sector specific information that can be considered when providing advice to the AFMA Commission.
 - b. A series of AFMA internal and stakeholder workshops have been conducted to get up-to-date information, insight into the on-the-water impacts of climate change and to start discussions around what climate change adaptation looks like for specific fishery sectors.
 - c. A climate risk framework is being developed that will qualitatively assess the climate risk for particular species and consider whether climate factors and necessary precautions are being applied which will be integrated into total allowable catch (TAC), or total allowable effort, advice.
 - d. Key climate indicators include:
 - i. warmer than average waters in South Australia (SA) and East Tasmania (TAS) throughout 2023, with warmer temperatures in East TAS forecasted to persist into early 2024.
 - ii. warm water species have been noted in larger numbers by industry along with larger catches of unmarketable catch.
 - iii. of the four GHAT shark quota species, evidence suggests climate change elephantfish and saw shark are most sensitive to climate change, while the gummy shark stock is only slightly impacted in a positive direction and school shark are negatively impacted.

⁴ Shark Industry Data Collection Program

14. SharkRAG noted the observations by Industry participants. Industry objected to the classification of school shark as subject to overfishing, with industry observing no sign of reduction in bycatch when targeting gummy shark. Industry noted that
- a. warm water species have been encountered in larger numbers.
 - b. there have been larger catches of unmarketable catch.
 - c. while there have been the usual levels of damage by sea lice, improved prices for shark have increased the landing of damaged fish for sale.
 - d. industry noted school shark have been harder to avoid in the northern areas of the fishery, potentially contradicting climate change projections of a southward move and observing no sign of depletion when targeting gummy shark indicating an improvement in the status of the school shark population.

Agenda item 3. Gummy shark assessment results

15. Dr Robin Thomson presented the 2023 gummy shark Tier 1 stock assessment results. SharkRAG noted the following key points:
- a. retrospective diagnostics for natural mortality are trending upwards with abundance declining.
 - b. the fit of data to the conditional length-at-age indices is as expected for males. However, for females the model indicated for a given length they are younger on average than in reality.
 - c. the model does not capture the difference in natural mortality for males and females that is evident from length-age data.
 - d. reducing the weight given to the trawl fleet CPUE time series did not greatly impact the results.
 - e. varying the density dependence had the greatest impact on the results. The agreed base case implements density dependence by allowing natural mortality for all ages to vary in response to the size of the population (aged 1 and greater).
 - f. recruitment has increased slightly for all stocks (Bass Strait (BS), TAS, and SA) over recent years.
 - g. RBCs were calculated assuming the same proportional split between stocks and gear types as seen in 2022. For some projections, the same catches as those observed in 2022 were assumed for 2023. Other projections used either the annual, or the long-term RBCs, that were calculated by applying the Harvest Control Rule (assuming the 2022 splits between stocks and areas).

- h. projections of pup depletion indicate that each of the stocks (BS, SA, and TAS) are currently above 48% and remain stable, eventually moving closer to 48% over time using the annual RBCs through to 2031.
- i. female age-at-length should be investigated further during the next gummy shark assessment, including improving the collection of samples across a more representative range of female shark sizes (especially the larger sizes).

Action item 1: CSIRO to further investigate the underrepresentation by the model of gummy shark female age-at-length growth curves. AFMA and CSIRO to investigate improving the collection of samples across a range of female shark sizes (with particular focus on larger sizes).

- j. length and age frequency data indicates a larger number of older sharks are being removed in SA by line gear. Other indicators suggest the stock is producing a good number of pups.
 - k. the assessment considered a number of RBC options including a 3-year average (2024-26), 5-year average (2024-28), long-term RBC (to 2051) and annual RBCs (from 2023 to 2031).
16. SharkRAG noted the 3-year average RBC of 1,733 t was lower than the long-term RBC of 1,755 t. CSIRO raised that they suspect there was overcompensation in the way the Tier 1 harvest control rule was applied, but this needs further investigation.

Action item 2: CSIRO to investigate why the 3-year average gummy shark RBC was lower than the long-term average RBC when the stock status remains above target.

17. SharkRAG discussed the large error bars in the conditional age-at-length data for males and females, particularly for smaller fish. CSIRO clarified the error bars include variation in length and age along with sampling error, and accounts for the impact of selectivity on observed lengths at age.
18. CSIRO suggested the following work, that could improve the gummy shark assessment model, on:
- a. estimated sex-specific mortality
 - b. estimated growth parameters
 - c. the female growth curve
 - d. alternatively, the assessment model could be shifted to a new platform.

Agenda item 4. RBC advice for all shark species

19. SharkRAG noted that:

- a. advice was sought from the RAG on the recommended biological catch (RBC) for gummy shark, an incidental bycatch TAC for school shark, and TACs for elephantfish and saw shark.
 - b. SharkRAG chose the gummy shark model termed 'bridge 17' as the base case scenario, at the [SharkRAG 1 meeting](#) in October 2023, noting the uncertainty in the model. The next gummy shark assessment is scheduled for 2026 but further model development work is recommended before then, in particular, to improve female growth rate estimation.
 - c. there are currently no identified climate change impacts on the gummy shark stock.
 - d. following the support provided by AFMA for the industry proposal to shift catch of gummy shark out of the BS zone for the 2023-24 season, gummy shark catches have been monitored by the Southern Shark Industry Association (SSIA). There will be greater clarity on the outcomes/impacts of this initiative following completion of the 2023-24 season.
 - e. school shark is a companion species of gummy shark. A metier analysis for these species is planned for 2024 in order to estimate the impact on school shark bycatch from shifts in the size and location of gummy shark fishing.
 - f. school shark by-catch rates are higher in the SA and Tas zones compared to the BS zone.
 - g. school shark has been recently classified as *overfished* and *subject to overfishing* in the ABARES [Fishery Status Report for 2023](#), largely on the basis that the total mortality threshold that allows for 3 per cent annual population growth was exceeded once discards, state catch, and recreational catch were taken into account. AFMA noted that this classification is tied to whether the rebuilding timeframe in the rebuilding strategy is on track or not and that given the switch to the CKMR assessment, there is currently no way to determine this with any certainty.
 - h. elephantfish and saw shark are now categorised as trigger species ([SESSFRAG⁵, August 2023](#)). These species were noted by ABARES for 2023 due to uncertainties going into the saw shark assessment. Both stocks have low catches relative to the TAC and have uncertainties in the estimated of discards and a long time since the last quantitative assessment.
20. The increase in the school shark TAC for the 2022-23 fishing season was expected to lead to reduced discarding however this did not occur as discards for that season were relatively large. In the absence of an updated assessment, sharkRAG suggested calculating the TAC using the method applied previously, which estimates future school shark bycatch, and state catches using a four year average over the past, assuming a rebuild of the school shark population at an annual 3% increase and therefore bycatch rate, but also capping removals at the projected sustainable catch level from the previous CKMR assessment model. Quota availability was noted as a contributing factor to discarding. It was noted that the metier report would be available for this calculation in future.

⁵ Southern and Eastern Scalefish and Shark Fishery

21. Due to a CKMR assessment due to be completed in 2024 along with potential changes through policy, SharkRAG agreed to continue with past RBC setting processes for school shark for 2023. Dr Robin Thomson noted that the school shark assessment might have been delayed by a year due to delays in implementing and operationalising epigenetic ageing.
22. SharkRAG recommended:
- a. a 3-year average of 1,733 t or annual RBCs of 1,831 t in 2024, 1,708 t in 2025, and 1,660 t in 2026 for gummy shark,
 - b. maintaining the TACs for saw shark (at 525 t) and elephantfish (at 114 t), as per the agreed trigger species approach
 - c. CSIRO to update bycatch TAC calculations for school shark as per the same approach used in the previous two years and to provide the results to an out-of-session meeting of SharkRAG, noting that the CKMR assessment is due in 2024 and potential changes to policy, based on:
 - i. updated catch and discard information
 - ii. the decision to assume that discarded school shark survive at a rate given by the Braccini study and to apply that across all gear methods
 - iii. assuming a continuation of the rebuilding of the school shark population 3% per year
 - d. that development work on the gummy shark model (using the existing software) should be presented to SharkRAG a year before the assessment year (scheduled for 2026) for consideration, and to determine if any further work is required.

Action item 3: SharkRAG members, that are not considered to have a conflict of interest, to provide advice on an incidental bycatch TAC for school shark out-of-session.

Agenda Item 5. School shark rebuilding strategy

23. SharkRAG noted and discussed, to provide advice on the performance of the 2015 [school shark \(*Geleorhinus galeus*\) stock rebuilding strategy](#):
- a. the recent ABARES Fishery Status Report for 2023 has categorised school shark as subject to overfishing (previously categorised as uncertain).
 - b. there remain concerns regarding the uncertainty and applicability of applying the Braccini estimate of post capture survival to estimate school shark survivability when estimating a level of mortality for discards.
 - c. school shark is considered to be rebuilding within the recovery time period, under current management arrangements, until more information is known from CKMR assessment in 2024 or 2025. At which point, a review of the 2015 strategy will be undertaken.

- d. compliance in reporting of discards has improved since the last review in 2015. SharkRAG recommended the discard values to be updated and included in the next review.
 - e. a targeting analysis of school shark had been completed in the past that underpins the 20% catch ratio of school shark to gummy shark but this ratio may have changed over time. At the [SharkRAG 3 meeting](#) in December 2022, SharkRAG provided support for a targeting analysis, which could determine whether operators are effectively avoiding school shark.
 - i. Mr James Woodhams expressed interest in ABARES undertaking the analysis.
 - ii. the next metier analysis by CSIRO is scheduled for 2024 and could provide insights.
24. Industry raised concerns about the restriction when targeting gummy shark due to the increased avoidance of school shark as the stock rebuilds particularly in the BS zone. AFMA clarified the currently policy that reduces gummy shark catch in the BS zone does not specify where effort should be displaced to. AFMA will be in a better position to provide an update post 2023-24 fishing season about where the effort is being moved to.

Action item 4: SEMAC to discuss if a targeting analysis for school shark is needed (behaviours or management) noting that a metier analysis is due in 2024. If so, CSIRO and ABARES to ensure this project does not overlap and aligns with the school shark metier analysis scheduled for 2024.

Action item 5: AFMA to update discard values during the next review of the school shark rebuilding strategy.

Agenda item 6. School shark CKMR project

25. SharkRAG noted the update provided by Dr Robin Thomson on the school shark CKMR project:
- a. the CKMR model needs age estimates of the sampled animals and vertebral ageing is inadequate. Epigenetic ageing is the chosen ageing method for the updated CKMR work, but this requires calibration using a known-age set of animals, which are not available for school shark as bomb radiocarbon results were disappointing. Consequently, a new statistical approach to calibration is being developed using 'known time at large' intervals between same-aged full-sibling pairs. Both the need to develop a new epigenetic age calibration method, and delays in development of a commercial capacity to 'read' epigenetic information from DNA samples, will likely delay the presentation of an updated CKMR model to 2025.
 - b. the sequence data is 90% complete and the kin finding will be ready shortly.
 - c. the review panel that considered the previous CKMR work for school shark recommended the following improvements: reducing the ageing error, explicitly modelling the female breeding frequency, and improving the understanding of stock structure (for management purposes when interpreting assessment results). In addition, the longer time period over

which samples have been collected will increase the likelihood of the presence of 10 full sibling pairs in the sample (ie pairs comprising the offspring of full siblings and their aunt/uncle) which will need to be explicitly modelled.

Action item 6: CSIRO to confirm, by March 2024, the updated timeframe for when the updated CKMR assessment would be available. Ben Mayne (CSIRO) is currently being approached to ask when epigenetic readings will be possible.

Agenda item 7. Economic index update

26. SharkRAG noted Dr Julian Morison's update on the development of a potential economic index for the GHAT:

- a. ABARES have developed an index for the Eastern Tuna and Billfish Fishery (ETBF) that requires less data than that needed for an estimation of net economic return.
- b. the index indicates the economic conditions being experienced relative to the long-term average rather than the maximum economic yield. It is based on relative fish prices, catch rates, and operating costs (fuel costs are significant contributors to the economic conditions).
- c. it may be possible to develop an economic index for the GHAT, and more broadly the SESSF. Consideration could be given for submission as a research priority upon further clarity on the project's scope.

Action item 7. Dr. Julian Morison to provide further clarity to SharkRAG on how the usefulness of the economic index for the GHAT, and the SESSF based on its use in the ETBF. Furthermore, consideration should be given to developing it as a research priority for submission to the 2025-26 research funding round.

Agenda item 8. FRDC SESSF biological parameters capability uplift and data collection program

27. SharkRAG noted the update provided by Dr Karen Evans on the project *biological parameters for stock assessments in South Eastern Australia – an information and capacity uplift* ([FRDC 2022-032](#)). Five projects are being developed, four of which are suitable for PhD student and one for a mid-career researcher that focusses on methods for image analysis of otolith for ageing. Additionally, further placements on [South-East Australian Marine Ecosystem Survey](#) voyages are being organised.

Agenda item 9. Research priorities

28. SharkRAG noted that, in response to AFMA's call for research for the 2024-25 financial year, a research proposal relevant to the SESSF had been received: *evaluating contributing factors to catch per unit effort (CPUE) standardisation in the SESSF*. SharkRAG discussed the proposal:
- a. the project proposal will be delivered in two stages for identified key species
 - i. liaising with a working group and providing critical initial advice
 - ii. a range of scenarios will be considered regarding climate change across the SESSF, proposed spatial closures such as offshore windfarms, gear selectivity and limitations (i.e. danish seine mesh net length and size), and environmental variation.
 - b. another project is underway to improve the standardisation of CPUE on sharks.
29. SharkRAG supported the project for funding, as it is relevant to the SESSF, but did not deem it as a high priority unless it is directly relevant to the GHAT sector.
30. SharkRAG considered research priorities for inclusion in the 2025-26 Annual Research Statement and identified the following potential priorities:
- d. development of the gummy shark assessment model to allow sex specific natural mortality and to estimate growth curves in the current model as part of a current stock assessment project or progressed independently.
 - e. improve the understanding of school shark stock structure. There is an existing past CSIRO-UTAS proposal that could be resubmitted.
 - f. the development of an economic index appropriate for the GHAT, and potentially the SESSF more broadly, subject to further information as outlined at Agenda item 7.

Action item 8: CSIRO to confirm out of session whether a gummy shark assessment model development update would be progressed independently or combined with a current assessment project

Agenda item 10. SESSF data plan

31. SharkRAG noted the recommendations made by SESSFRAG to the data plan at their data meeting in August 2023.
- a. no changes were made to the sampling targets.
 - b. the CKMR for blue-eye trevalla workplan is underway to collect tissue samples along with otoliths to support a future CKMR assessment. Data collected will be incorporated under the SIDaC program and protocols for tissue collection, storage, and transport will be developed as part of this pilot program.

32. SharkRAG recommended that the collection of data on bycatch and protected species as appropriate, without targets, be specified in the SESSF data plan.

Action item 9: AFMA to amend the wording in the SESSF data plan referring to the reporting of bycatch and discard species to RAGs and MACs to better reflect the current process.

Agenda item 11. Other business

33. SharkRAG noted no other business to address.

Close of meeting

34. The Chair thanked participants for their contribution and closed the meeting at 17:25.

December 2023

Attachment A – Register of interest

Member	Position	Interest declared
Alexander (Sandy) Morison	Chair	<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 shark fishery.</p>
Robin Thomson	Scientific Member	<p>CSIRO, Assessment scientist. Acquiring funding for research purposes.</p> <p>PI of AFMA-CSIRO co-funded project 'Ongoing monitoring of school shark abundance and rebuilding in the SESSF using close kin mark recapture'.</p> <p>PI of the AFMA-funded project 2022/0806: "CKMR assessment design for selected key and rebuilding species in the SESSF and development of a CKMR tool for bycatch stocks".</p> <p>Co-investigator on FRDC project to develop harvest strategies for CKMR assessments for school shark and scalefish.</p>
Andrey Penney	Scientific Member	<p>Scientific member on SERAG, GABRAG, SharkRAG, SPFRAG, TRLRAG and Finfish RAG.</p> <p>Fisheries research and management consultant and has provided services to AFMA on a number of topics, including evaluating gear efficiency in the shark gillnet fishery.</p> <p>PI on FRDC project investigating use of dynamic reference point and harvest strategies for management of Commonwealth fisheries.</p>
Charlie Huveneers	Scientific Member	<p>Associate Professor and research scientist. Potential interest in funding for research. No pecuniary interest or otherwise.</p>
Julian Morison	Economic member	<p>Director, Kuti Co Pty Ltd – SA Pipi quota holder</p> <p>Director, BDO Advisory (SA) Pty Ltd - current contracts with SA & 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 & co-investigator on several FRDC research projects</p>
Kyri Toumazos	Industry Member	<p>Chief Executive Officer (South Australian Northern Zone Rock Lobster Fishermen's Association Inc.);</p> <p>Director of Southern Sea Eagles Pty Ltd;</p> <p>Director of Southern Fisheries Pty Ltd;</p> <p>Director Health Balance Pharmacies Pty Ltd;</p> <p>Member South Australian Boating Facility Board;</p> <p>Member of Shark Resource Assessment Group (AFMA);</p> <p>Member of South East Management Advisory Committee;</p> <p>Member of AMSA Regional Safety Committee;</p> <p>Director Southern Shark Industry Alliance;</p> <p>Director PACK Investments Pty Ltd;</p> <p>Director Cruickshank's Corner Developments Pty Ltd;</p> <p>Director Cruickshank's Corner Commercial Pty Ltd;</p> <p>Director Seafood Industry Australia;</p>
Leigh Castle	Industry Member	<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>
Craig Harris	Industry Member	<p>Gillnet fisher and SFR holder.</p>
Jamie Papas	Industry Member	<p>Gillnet fisher and SFR holder.</p> <p>Board Director San Remo Fishermen's Co/Op</p>
Anissa Lawrence	Conservation Member	<p>Director of TierraMar Ltd, registered charity.</p> <p>Independent consultant TierraMar Consulting Pty Ltd</p> <p>Undertakes contracts for a number of Conservation Non-Government Organisations, government departments, non-government agencies and the private sector on a range of fishery related matters.</p> <p>No pecuniary interest.</p> <p>Conservation member on SPFRAG</p> <p>Conservation member on SEMAC</p> <p>Conservation member on South Australia Rock Lobster MAC and RSC</p> <p>Conservation member on Spencer Gulf Prawn RSC</p>

		Director and Chair of Ocean Future Fund Inc Ocean earth foundation
Lara Ainley	AFMA Member	AFMA member, Manager of the Gillnet, Hook and Trap fishery. No interest pecuniary or otherwise.
Michelle Henriksen	Executive Officer	AFMA EO. No interest pecuniary or otherwise.
Miriana Sporcic	Invited Participant	Employed by CSIRO. No interest, pecuniary or otherwise.
Nick Hill	Invited Participant	Employed by CSIRO. No interest, pecuniary or otherwise.
Ross Bromley	Invited participant	Principle of Girella Fisheries Services. Engaged by SSIA as SIDaC manager. Engaged by SETFIA as western orange roughy project manager. Member of Victorian Rock Lobster RAG. EO of Eastrock. Client representative of various MSC Certificates (none are shark sp.). No interest, pecuniary or otherwise.
James Woodhams	Observer	Employed by ABARES. No interest, pecuniary or otherwise.
Kurt Davis	Observer	Employed by ABARES. No interest, pecuniary or otherwise.
Dan Corrie	Observer	Employed by AFMA. No interest pecuniary or otherwise.

Attachment B – Final meeting agenda

Location: Canberra

Chair: Sandy Morison

04.12.2023 09:00 to 16:30

Time	Item	Purpose	Presenter
09:00	1. Preliminaries 1.1 Acknowledgement of Country, welcome and apologies Declarations of interest 1.2 Adoption of Agenda 1.3 Minutes from previous meetings 1.4 Actions arising from previous meeting	For information	Chair/Michelle Henriksen (30 min)
09:30	2. Climate change and ecosystem indicators	For information	Alice McDonald (30 min)
10:00	3. Gummy shark assessment results	For information	Robin Thomson (60 min)
11:00	<i>Morning tea (15 min)</i>		
11:15	4. RBC advice for all shark species	For advice	AFMA (60 min)
12:15	5. School shark rebuilding strategy	For advice	AFMA (30 min)
12:45	<i>Lunch (60 min)</i>		
13:45	6. School shark CKMR project	For information	Robin Thomson (30 min)
14:15	7. Economic index update	For information	Julian Morison (30 min)
14:45	8. FRDC SESSF biological parameters capability uplift and data collection project	For information	Karen Evans (15 min)
15:00	<i>Afternoon tea (15 min)</i>		
15:15	9. Research priorities	For advice	AFMA (30 min)
15:45	10. SESSF data plan	For advice	AFMA (30 min)
16:15	11. Other business	For advice	Chair/members (15 min)
16:40	<i>End of Day 1</i>		



Attachment C – Progress of actions from previous meetings

Complete/Redundant		Underway		Need further advice		Not yet started
Agenda item	No.	Action	Agency / Person Responsible	Timeframe	Progress	
SharkRAG 2 2022	4	Sensitivity analyses and base case scenarios incorporating gillnet efficiency to be presented to SharkRAG in 2023 for the gummy shark stock assessment.	CSIRO	SharkRAG 2023	The incorporation of gillnet efficiency is included in the research project “Improving CPUE Standardisation for Sharks” which commenced in the 2023-24 financial year. Results of this research will be available for the 2023 gummy shark stock assessment. This project is ongoing.	
SharkRAG 2 2022	10	Dr. Julian Morison to facilitate the economic data collection discussion with ABARES (Robert Curtotti and James Woodhams) and Dr. Thomson to characterise the work involved, the scope of the project, methods and objectives.	Julian Morison	Complete	Julian Morison provided an update at agenda item 7. A new action has been created to further characterise the scope for consideration in the Annual Research Statement.	
SharkRAG 2 2021	5	AFMA to liaise with CSIRO (Dr Burch) to include a summary of previous SharkRAG advice regarding historical catches be included into a paper they are working on that capture’s historical decisions.	AFMA	SESSFRAG Chair’s 2024	The catch histories project is progressing and includes the consideration of school and gummy shark catch histories. The project has been delayed and results are expected to be presented to the 2024 SESSFRAG Chair’s meeting.	

	SharkRAG 1 2021	8	SIDaC to look at feasibility of including sawshark species composition in their data program	AFMA and SIDaC	Ongoing	<p>“AFMA to create a comparison of EM data versus logbook data regarding saw shark composition including a summary table for the RAG to consider.”</p> <p>Still some work to be done to deal with issue</p> <p>Action item- should be checking data ISMP.</p> <p>Underway- Not complete.</p>
		9	AFMA to consider observer data including trawl data in the sawshark summary table for SharkRAG – related to SharkRAG1 2021 action item 7			
	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	Ongoing	<p>The review of the School Shark (<i>Galeorhinus galeus</i>) Stock Rebuilding Strategy is underway and will be updated pending the next CKMR assessment in 2024. The updated strategy will include information concerning latest research relevant to the genetic connectivity between Australian and New Zealand school shark stocks.</p> <p>Update: while there is some migration between stocks, there is no established genetic connectivity, and these are considered as separate stocks.</p>

	SharkRAG 1 2023	1	AFMA to seek further advice from CSIRO (for example Dr. Beth Fulton) to provide insight on the relationship between octopus and gummy shark populations, to better understand the potential impact of an incoming octopus fishery through VIC (along with established octopus fisheries in SA and TAS) on the GHAT.	AFMA / CSIRO	Not yet started	AFMA to discuss further with CSIRO as soon as practicable.
	SharkRAG 1 2023	2	AFMA to include the percentage of gummy and school catches and discards by zone to the data summary, and to improve the presentation of the catch and discard proportions.	AFMA	Complete	Catch and discard data was provided by AFMA during agenda item 4: RBC advice for all shark species at SharkRAG 2 2023.
	SharkRAG 1 2023	3	AFMA to seek advice from GABRAG/MAC to provide insight into Trawl gummy SA shift in depth distribution extending deeper.	AFMA	Ongoing	The industry representative will provide a response at GABMAC during the November 2023 meeting.
	SharkRAG 1 2023	4	CSIRO to confirm if Blue Grenadier factory vessels are included in the data input for the school shark trawl CPUE series.	CSIRO	Complete	CSIRO confirmed the input for school shark trawl CPUE series includes records from Blue Grenadier factory vessels.
	SharkRAG 1 2023	5 6 7	CSIRO to follow up: a) how the partial versus total partial length data was converted during data processing b) a potential way to estimate growth considering selectivity of gear outside of the model c) CSIRO to down-weight the trawl series to see if there is a difference in the fit of CPUE as a sensitivity.	CSIRO	Complete	Results were provided during agenda item 3 Gummy shark assessment.
	SharkRAG 1 2023	6	Industry, AFMA and CSIRO to work on expanding sample collection from SA and TAS shallow line fleets in the data plan, such as increased as and length samples and tag recapture data.	AFMA / CSIRO / Industry	Ongoing	SharkRAG to discuss under the SESSF data plan agenda item at SharkRAG 2023.

Attachment D – Actions and recommendations arising from the meeting

Action/recommendation	Agenda Item	Actions/recommendations
Action item 1	03 Gummy shark assessment results	<p><u>Action</u></p> <p>CSIRO to further investigate the under-representation by the model of gummy shark female age-at-length growth curves. AFMA and CSIRO to investigate improving the collection of samples across a range of female shark sizes (with particular focus on larger sizes).</p>
Action item 2	03 Gummy shark assessment results	<p><u>Action</u></p> <p>CSIRO to investigate why the 3-year gummy shark RBC is lower than the long-term RBC when the stock status remains above target.</p>
Recommendation 1	04 RBC advice for all shark species	<p><u>Recommendation</u></p> <p>Development work on the gummy shark model (using the existing software) should be presented to SharkRAG a year before the assessment year (scheduled for 2026) to consider updates and any further work required.</p> <p>Gummy shark</p> <p>SharkRAG recommend a 3-year average of 1,733 t or annual RBCs of 1,831 t in 2024, 1,708 t in 2025, and 1,660 t in 2026 for gummy shark.</p> <p>School shark</p> <p>CSIRO to update bycatch TAC calculations for school shark as per the same approach in previous two years, noting that the CKMR assessment is due in 2024 and potential changes to policy, based on:</p> <ol style="list-style-type: none"> 1. updated catch and discard information (including the 10% survivorship across all gear methods) 2. assuming a continuation of the rebuilding 3% per year 3. assumptions regarding gummy shark catch and RBC are applied 4. the results to be compared with outputs from the previous CKMR assessment.

Action/recommendation	Agenda Item	Actions/recommendations
		<p>Elephantfish & saw shark</p> <p>SharkRAG confirmed maintaining the TAC at 525 t for saw shark and 114 t for elephantfish following the agreed trigger species approach.</p>
Action item 3	04 RBC advice for all shark species	<p><u>Action</u></p> <p>SharkRAG members, that are not considered to have a conflict of interest, to provide advice on an incidental bycatch TAC for school shark out-of-session.</p>
Action item 4	05 School Shark rebuilding strategy	<p><u>Action</u></p> <p>SEMAC to discuss if a targeting analysis is required for school shark (behaviours or management) as suggested by ABARES. CSIRO and ABARES to ensure this project does not overlap and aligns with the school shark metier analysis scheduled for 2024.</p>
Action item 5	05 School Shark rebuilding strategy	<p><u>Action</u></p> <p>AFMA to update discard values for inclusion in the next school shark rebuilding strategy review.</p>
Action item 6	05 School Shark rebuilding strategy	<p><u>Action</u></p> <p>CSIRO to confirm a timeframe for when the CKMR outputs will be known by March 2024. An external researcher is currently being approached to see if the work is able to be completed for methylation reading.</p>
Action item 7	07 Economic Index	<p><u>Action</u></p> <p>Dr. Julian Morison to provide further clarity on how the outcomes of the economic index project can be used if it is developed as a research priority for the 2025-26 call for research, including how the index is useful for SharkRAG based on its use in the ETBF.</p>
Recommendation 2	09 Research priorities	<p><u>Recommendation</u></p>

Action/recommendation	Agenda Item	Actions/recommendations
		<p>SharkRAG supported the project proposal <i>Evaluating contributing factors to catch per unit effort (CPUE) standardisation in the SESSF</i> for funding, as it is relevant to the SESSF, but did not deem it as a high priority unless it is directly relevant to the GHAT sector</p> <p>SharkRAG considered research priorities for inclusion in the 2025-26 Annual Research Statement and identified the following potential priorities:</p> <ol style="list-style-type: none"> I. development of the gummy shark assessment model to adapt to enable estimated sex specific natural mortality and growth curves in the current model. II. improve the understanding of school shark stock structure. There is an existing past CSIRO proposal that could be resubmitted. III. the development of an economic index appropriate for the GHAT, and potentially the SESSF more broadly, subject to further information as outlined at Agenda item 7.
Action item 8	09 Research priorities	<p><u>Action</u></p> <p>CSIRO to confirm out of session whether a gummy shark assessment model development update would be progressed independently or combined with a current assessment project</p>
Action item 9	10 SESSF data plan	<p><u>Action</u></p> <p>AFMA to amend wording in the SESSF data plan referring to the reporting of bycatch and discard species to the RAGs and MACs to better reflect how this is being done currently.</p>