



Australian Government

Australian Fisheries Management Authority



**Shark Resource Assessment
Group (SharkRAG)
Meeting No.2 2014**



Meeting Minutes

**Date: 20 November 2014
Venue: Holiday Inn
Melbourne Airport**

Attendance

Name	Membership (type i.e. chair etc.)
Brendan Kelaher	Chairperson
David Power	AFMA member
Anissa Lawrence	Environment member
Andrew Trappett	Executive Officer
Jason Pettit	Industry member
David Stone	Industry member
Kyri Toumazos	Industry member
Robin Thomson	Science member
Jeremy Prince	Science member
Colin Simpfendorfer	Science member
Malcolm Haddon	Invited participant – science
Nic Marton	Invited participant – science
Miriana Sporic	Invited participant – science
Diarmid Mather	Observer – management
George Day	Observer – management

Minutes

Item No.	Discussion	Action Items / Rec's
1. Preliminaries		
1.1. Welcome	RAG chair welcomed participants and opened the meeting at 9:00am.	
1.2 Apologies	No apologies were noted with all members present. Meeting had a quorum.	
1.3 Agenda	Agenda was adopted with no changes. It was agreed to update the species summary documents under agenda item 9 – other business	
1.4 Actions arising	RAG noted status of actions arising from their last meeting of 15-16 November 2014 as tabled at Attachment 1 . It was agreed that RAG members with shark biological expertise were to provide a brief overview on the state of knowledge of the Gummy Shark stocks in waters deeper than 183m under other business at agenda item 9.	

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1.5 Declaration of interests	RAG followed the declaration of interest procedures as outlined in AFMA's Fisheries Administration Paper 12 and in the tabled paper noting the standing list of declared conflicts of interest which were updated (Attachment 2). SharkRAG noted that the key business of the meeting was to come up with recommended biological catches (RBCs) for the four shark species for the 2015/16 season. Interests relative to RBCs were declared by industry members David Stone, Kyri Toumazos and Jason Pettit. These members left the room while the RAG deliberated on their participation. The RAG discussed the point that it would naturally be difficult for industry members to discuss RBCs without any sensitivities associated with their business interests. RAG agreed that industry participate in all agenda items due to their valuable knowledge and the RAG recommended that any advice given by industry regarding likely RBCs (increasing or decreasing) was to be noted accordingly.	
2. Updates		
2.1 Manager's update	AFMA member and GHAT sector manager David Power provided a brief update to the RAG on recent management developments noting the focus on the implementation of the Dolphin Strategy. The Strategy provides guidance for the industry in setting performance criteria in mitigating dolphin interaction with gillnets. David Power advised that recent industry and dolphin sub-committee meetings had supported an industry drive to develop and establish a scientific program to help further mitigate dolphin interactions, potentially using acoustic mitigation technology. RAG noted that industry had imposed on themselves a voluntary cumulative bycatch trigger after five dolphin interactions and that if this trigger is met, industry will continue to meet to facilitate exchange on knowledge on best practice dolphin mitigation methods.	
2.2 Industry update	<p>RAG noted brief updates on the status of the stocks/industry from industry members present:</p> <p>Jason Pettit, shark hook sector, South Australia:</p> <ul style="list-style-type: none"> • Industry is now more united in addressing dolphin bycatch and implementing best practices. • Industry members are developing a scientific research program to answer some information needs on dolphin bycatch and use of acoustic mitigation technology, such as pingers. <p>David Stone, EO of Sustainable Shark Fishery industry association, Lakes Entrance, VIC:</p> <ul style="list-style-type: none"> • Strong pulses of Gummy Shark catches were evident lately. • Fishers continue to focus on avoiding School Shark which is difficult for some fishers. • Acquiring School Shark quota is cost prohibitive and in order to access quota fishers often 	

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	<p>need to lease extra kilograms of Gummy Shark quota as part of the trade. This is often almost an impossible task due to the lack of availability. It is further compounded by the 28 day reconciliation period which results in some operators having to pay high lease fees for quota which can be in high demand.</p> <ul style="list-style-type: none"> • Profits from landed catch have been unfavourable for some time and marketing remains an issue; shark prices have been static over time \$8-12/kg range while costs of doing business have increased. Mr Stone cited one example of a fisher sending 514kg of Sawshark to market who received \$516. When the lease fee, transport and market costs was removed, the fisher had made no profit and the transaction had actually cost him money. • Profits are too low to encourage entry into the fishery and, more importantly, to keep experienced crews in the fishery over the long term. • Six boats have been tied up lately as no skippers have been available to pilot. • RAG noted that this is a larger issue that the government is mindful of especially regulatory controls that might prevent fishers from going fishing or landing fish already caught. <p>Kyri Toumazos, hook and gillnet concessions, South Australia and Bass Strait:</p> <ul style="list-style-type: none"> • Some industry members want to maintain a gillnet fishery over the long term and this is preferable to longline fishing for Gummy Shark. • Strong concerns raised that shark hook fishers in some areas are catching large size class sharks which is likely unsustainable in the long term. • Strong concerns that Commonwealth shark fishers who are in over quota position of a few kilograms will incur compliance action from AFMA, yet SA state fishers in internal waters are taking large amounts of Gummy Shark with no requirement to hold quota and have exceeded the state allocation under the MOU between the Commonwealth and South Australia. • State shark catch from internal waters is made up of predominately big female Gummy Sharks due to high grading/ targeting large size class Gummy Shark under an existing 10 shark carcass limit per trip (for School and Gummy). • There is concern that the SA 10 fish trip limit encourages both significant take and unrecorded mortality due to high-grading e.g. more sharks are killed for every 10 sharks landed with an unknown amount discarded. • High-grading likely occurs with School Shark as well. 	

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	<ul style="list-style-type: none"> • Calls for AFMA to work with PIRSA to ensure fishers maintain strict retention to their allocation of the Commonwealth TAC, as well as implementation of strict rules to ban discards and high grading. • The AFMA member advised that AFMA has written and had met with PIRSA and has received an assurance from them that their shark fishers in internal waters will restrain catches to within the state allocation of the overall recommended biological catch. 	
3. Target reference point for Elephant Fish and Sawshark	<p>RAG advice was sought on whether a target reference point of B_{48} or B_{40} was more appropriate for both Sawshark and Elephant Fish, noting that SESSFRAG has recommended moving other secondary commercial species (Ocean Perch and Ribaldo) to an MSY B_{40} recommended target as they are not key economic drivers. Shark RAG noted that the SESSF harvest strategy currently lists Saw Shark and Elephant fish as key commercial/target species and that this was not accurate and these species are considered secondary commercial species.</p> <p>Shark RAG noted the points of enquiry considered by the AFMA Commission in approving the changed target reference point for Ocean Perch and Ribaldo:</p> <div data-bbox="504 831 1744 991" style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> • To what extent is the species targeted? • What is the species contribution to the fishery GVP? • Are there sustainability concerns? • Is there latent quota i.e. under-caught TAC? </div> <p>SharkRAG recommended that there was a strong case for moving both species to a Maximum Sustainable Yield (MSY, B_{40} proxy) target reference point based on the following consideration of the AFMA Commission's existing points of enquiry:</p> <p>Elephant Fish</p> <div data-bbox="504 1230 1744 1422" style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> • No targeting behaviour evident in recent years with high level of discards (more than half of what is caught is discarded – ISMP estimate 0.58 with CV 7.1%) • Contributes a very small percentage of the fishery GVP (0.3% of GVP) • Shark RAG has no sustainability concerns for the stock • Significant quota latency – 61% of TAC caught in 2013/14 season. </div>	<p>Recommendation:</p> <p>SharkRAG recommended moving both Sawshark and Elephant Fish to a Maximum Sustainable Yield (MSY, B_{40}) target reference point.</p>

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	<p data-bbox="472 220 607 244">Sawshark</p> <ul data-bbox="517 268 1711 483" style="list-style-type: none"> • No targeting behaviour evident in recent years with significant level of discards (approximately a third of what is caught is discarded). • Contributes a small proportion of the fishery GVP (~1% of GVP) • Shark RAG has no sustainability concerns for the stock, but notes the declining CPUE in the gillnet sector • Significant quota latency – 51% of TAC caught in the 2013/14 season <p data-bbox="472 539 696 563">Points discussed:</p> <ul data-bbox="517 587 1733 1265" style="list-style-type: none"> • No sustainability concerns in moving both these species to a B₄₀ target • Target reference point was not fixed long term and could move between B₄₀ and B₄₈ if one of the species becomes a key commercial driver in the future • RAG noted Sawshark was actually a basket of two species • Current Sawshark TAC is now at the level of historic landings when the TAC was much higher (and the TAC was still under-caught then) • B₄₀ was considered a better target from an economic perspective as it would provide more incentives to land catches and would over time reduce incentives to discard. • Sawshark was noted as a key commercial species in the trawl sector where it is defined as both a target and a key commercial driver • Sawshark catch rates have been decreasing in the gillnet sector, possible caused by a number of reasons which could be due to fisher avoidance behaviour or market forces. This trend is not evident in the trawl sector • RAG considered that a review point could be developed to ensure the correct target was being used e.g. if catches ever approach RBC estimated from B₄₈ the RAG would have concerns. • Market forces are likely an issue for both species with some operators not having access to quota for these species resulting in discards at times. 	

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<p>4. Recommended Biological Catches for Elephant Fish and Sawshark for 2015/16 SESSF fishing season</p>	<p>RAG advice was sought on recommending RBCs, MYTACs and research catches for the 2015/16 SESSF season for both Tier 4 species – Sawshark and Elephant Fish. The RAG noted the prepared CSIRO presentation by Malcolm Haddon “<i>CPUE and Tier 4, Shark Fishery, Malcolm Haddon, November 2014</i>” based on the previously tabled Tier 4 assessment paper.</p> <p>Sawshark</p> <p>RAG recommendations:</p> <div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> • RBC of 600t (using a model with B₄₀ target and trawl CPUE series with no discards included) • No MYTAC recommended • No research catch recommended • Discount Factor of 15% to be applied in converting RBC to TAC </div> <p>Key points from CSIRO Sawshark presentation:</p> <ul style="list-style-type: none"> • Catches of Sawsharks by trawl are now almost as high as those taken by the gillnet sector. • Analysis of Trawl CPUE leads to an increase in RBC whereas Gillnet CPUE suggests a decrease. • Gillnets appear to be successfully avoiding Sawsharks. <p>Points discussed:</p> <ul style="list-style-type: none"> • RAG recommended using the trawl CPUE series for recommending a biological catch level. • Large increase in RBC was due to changing to a different assessment model with a different target reference point. • Discards are aggregated across all methods and due to stratification of the ISMP supplied discards are not included in the total removals in the analysis. • As discards are not included in the assessment and RBC recommendation they will not be deducted when setting the TAC • Strong need to record all trawl discards of Sawshark and for the RAG to monitor this. • RAG supported the application of the 15% discount factor in calculating the TAC, given 	<p>RAG Sawshark recommendations:</p> <ul style="list-style-type: none"> • RBC of 600t • B₄₀ target • No MYTAC • No research catch • Discount Factor to be applied <p>Note: species summaries attached to these minutes</p>

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	<p>the changed target reference point.</p> <ul style="list-style-type: none"> • RAG noted one important issue with the analysis was how whole-catch discard events are treated in the analysis i.e. to what extent fishers may discard entire Sawshark or Elephant Fish catches and how this is captured in the model. Industry advised that in some areas of the fishery this would approach 100% for Elephant Fish and a lesser extent Sawsharks but this would vary highly depending on practices, preferences and areas fished. The advice given was that if operators have quota to fill they will land some amount of catch, but if no quota is held by fishers it will generally be discarded. • The invited science participants from CSIRO advised that if a significant number of shots did have whole-catch discard events then this was an issue but it could be addressed out of session for future assessments. <p>Elephant Fish</p> <p>RAG recommendations:</p> <div style="border: 1px solid black; padding: 5px;"> <ul style="list-style-type: none"> • RBC of 357t (using a model with B₄₀ target and discards data incorporated). • No MYTAC recommended given recent changes to assessment methodology. • No research catch recommended. • Discount Factor of 15% to be applied in converting RBC to TAC. • Large change limiting rule to be applied in converting RBC to TAC. </div> <p>Key points from Malcolm Haddon's Elephant Fish presentation:</p> <ul style="list-style-type: none"> • Inclusion of discards into the Elephant Fish CPUE series is preferable but there are some concerns about how reliable the estimates are. Currently, the tonnage discarded is calculated using the discard rate estimated from ISMP data, and the landed catch from CDR records. However, if whole catches are often discarded and no elephant fish landed, then this calculation might be in error. An investigation of this potential problem will be made by CSIRO over the next year. • Recreational catches of Elephant fish are believed to be increasing – a new estimate would be valuable. 	<p>RAG Elephant Fish recommendations:</p> <ul style="list-style-type: none"> • RBC of 357 t • B₄₀ target • No MYTAC • No research catch • Discount Factor to be applied • Large change limiting rule to be applied <p>Note: species summary attached to these minutes.</p>

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	<ul style="list-style-type: none"> • If whole catches of Elephant fish are discarded then the analysis needs to be re-examined and this issue addressed. <p>Points discussed:</p> <ul style="list-style-type: none"> • RAG recommended using an assessment model with a B_{40} target reference point. • RAG considered which model version to use i.e. with or without discards incorporated into the assessment noting that both were reasonable models but have inherent biases; one biased high (RBC of 356t with discards incorporated), one biased low (RBC of 136t with no discards). • RAG recommended using the model with discards incorporated prior to the assessment: <ul style="list-style-type: none"> - RBC of 357t - It was noted that discard modified catch rates would be biased high if whole catches of elephant fish were discarded. This will be explored in the next assessment in 2015. - RAG recommended applying the 15% discount factor and noted that the large change limiting rule would apply when setting the TAC. • Large amounts of discards in recent years with associated amount of uncertainty in the estimate i.e. an unknown proportion of the discards derives from recent records – RAG considered that there likely exists an historic underestimate of discard amounts. • As per Sawsharks, the Elephant Fish assessment also shared the 'whole-catch discard event' issue and that this would need to be resolved in future modelling in order to determine how to treat these data in the model for the next assessment • RAG consensus is that incentives should be given to fishers to try to minimise discards. • No sustainability concerns for this stock. • No MYTAC recommended due to the whole-catch discards issue raised and the move to a B_{40} target. <p>RAG noted that for both stocks (Sawshark and Elephant Fish) that the catches from the Fishery Independent Surveys were not available to CSIRO to input into the total removals before the assessments are run. RAG made this an action item for these shark species data to be supplied and ideally data for other SESSF species too.</p>	<p>Action 1: AFMA to ensure that catches of quota species from the SESSF Fishery Independent Survey are provided to CSIRO to include in total removals for assessment purposes.</p>

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	<p>Multi-year Total Allowable Catches for Sawshark and Elephant Fish</p> <p>The RAG noted their 2013 recommendation that both Sawshark and Elephant Fish should not be managed under multi-year total allowable catches (MYTAC) given RAG concerns over the recent change in assessment methodology i.e. using the trawl CPUE series.</p> <p>Shark RAG noted the AFMA direction that SESSF quota species are to be managed under a MYTAC arrangement unless there are reasons not to. For the 2015-16 season the RAG recommended not applying a MYTAC noting:</p> <ul style="list-style-type: none"> • further refinements were needed to the models, in particular with how they treat discard data. • The RAG will need to examine the decline in catch rates for the gillnet sector and determine whether this is due to gillnet fishers getting better at avoiding taking these species, or a less likely and more concerning scenario whereby there was some issue with the stock biomass. 	
<p>5. Gummy Shark breakout rules under Multi-year Total Allowable Catch arrangement</p>	<p>The RAG noted the Gummy Shark stock was being managed under a MYTAC with the upcoming season (2015/16) to be the second season of a three season MYTAC.</p> <p>RAG noted the preliminary breakout-rule analyses from their last meeting and that the parameters set for the three rules had not been exceeded for 2013/14 season:</p> <ul style="list-style-type: none"> • Most recent standardized CPUE series point to be above or below the 10th percentile of the historical values for Bass Strait (historical values defined as 1997-2012). The standardized CPUE for 2013 (0.84) was above the 10th percentile (0.82). Result: no breakout triggered. • Catches are not to fall below 1200t. Result: no breakout triggered. AFMA catch watch indicates total catch was 1504t for last season • Length frequencies of line caught Gummy Shark are not to change substantially from the model parameters: <ul style="list-style-type: none"> a) more than 15 % of length frequencies shorter than 76cm total length b) more than 20 % of length frequencies greater than 130cm total length 	<p>Outcome post RAG meeting: AFMA will monitor longline Gummy Shark catch and advise the RAG if monthly catches during 2015 are higher than they were in 2014.</p>

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	<p>Result: no breakout triggered of either of these frequencies, noting came close with 9% of line caught were shorter than 76cm and 19.9% were greater than 130cm. The percentage >130 cm was calculated from ISMP onboard measures for known scalefish vessels combined with known shark vessels (several unclassified vessels were excluded). Results were weighted by logbook catches for these vessels, using 2012 plus 2013 catches.</p> <p>Shark RAG were asked to provide advice on whether an assessment update is needed, given that Gummy Shark had come close to breaking out of the size selectivity model parameters.</p> <p>The current stock assessment generates an RBC that is based on an assumed selectivity pattern for hook vessels (knife-edged at 76cm) for all types of line vessel. If more large breeding sharks are caught than expected, this is likely to result in a lower RBC. Previously, useable length frequency measurements from hook vessels were not available for inclusion in the gummy shark stock assessment model so that selectivity had to be assumed, instead of estimated.</p> <p>The RAG noted that updating the Gummy Shark tier 1 assessment with catch and length data from 2013-14 would give more reliable information on the impacts of catching more large shark in the hook sector. However, industry members questioned whether this was necessary as the existing multi-year TAC is precautionary. The RBC is 2,010 tonnes and the multi-year TAC has been set at 1,836 tonnes under the MYTAC arrangement.</p> <p>The scientific members noted that size structure is critical to sustainability; if more large sharks are being taken than assumed in the assessment, this will affect the long term sustainability of Gummy Shark and needs to be monitored closely.</p> <p>The RAG noted differing views from members regarding whether the model should be updated in 2015. However, it was noted that based on the most recent 2014 catch data presented to the RAG, the amount of longline catch may have stabilised during 2014. Furthermore, with gillnet fishing resuming in the Coorong area, the amount of longline catch is not expected to increase during 2015. The RAG did not have sustainability concerns with continuing the MTYAC in 2015-16.</p>	

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	<p><i>[Post meeting outcome: AFMA will monitor longline gummy shark catch and advise the RAG if monthly catches during 2015 are higher than they were in 2014. AFMA can also consider management options that would limit fishing mortality of large sharks if catch of large sharks increases.]</i></p>	
<p>6. School Shark Recommended Biological Catch for 2015/16 SESSF season.</p>	<p>RAG advice was sought on the RBC for School Shark in the 2015/16 season and the appropriateness of the incidental bycatch total allowable catch level (currently set at 215t).</p> <p>In line with the School Shark rebuilding strategy, the RAG recommended an RBC of 0t for 2015/16 with no research catch and no MYTAC arrangement.</p> <p>SharkRAG recommended the incidental bycatch TAC of 215t be maintained for 2015/16 noting:</p> <ul style="list-style-type: none"> • Trawl catch per unit effort for school shark has been increasing gradually since 2003 possibly indicating that rebuilding is occurring • Concerns that discards may continue to increase • Uncertainty whether discards were alive or dead • Uncertainty over the level of state catches and total mortality on the stock • Total fishing mortality must be lower than 250t to allow the stock to rebuild • There is both quantitative and qualitative evidence suggesting the stock is rebuilding • Rate of rebuilding and abundance of the stock are unknown • There is still no reliable independent estimate of abundance <p>Malcolm Haddon of CSIRO presented a characterization of School Shark trawl and gillnet sector catches and discards information entitled "<i>Recent School Shark Fishery, Malcolm Haddon, CSIRO, Nov. 2014</i>".</p> <p>Points discussed:</p> <ul style="list-style-type: none"> • There are positive signs that School Shark are rebuilding based on consistent increase in trawl CPUE since 2003 and increasing CPUE from manual longline data between 2012 and 2014. • Signs of rebuilding apparent, but the magnitude of this increase is unknown. • SharkRAG noted that for recovery to occur within three generation times (66 years), total 	<p>RAG School Shark recommendations:</p> <ul style="list-style-type: none"> • RBC 0t • Bycatch TAC remain at 215t • No MYTAC • No research catch <p>Action 2: In moving to electronic monitoring, AFMA and industry to work with skippers to promote the accurate recording of discards including life status</p> <p>Action 3: AFMA to write to operators to provide education on use of discard codes (place a note on GoFISH)</p> <p>Action 4: AFMA and RAG to pursue further information on School Shark post capture survivability from the research of Terry Walker and Richard Reiner.</p>

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	<p>fishing mortality (including discards, state catches etc.) must remain below 250t. However, this is based on the 2009 assessment update for School Shark (and the productivity estimate made in 2012 using, but not updating, the 2009 model) and there is uncertainty around how accurately this estimate reflects current abundance. It was noted that the Close kin project is now funded and is expected to provide a more reliable measure of abundance by the end of 2017.</p> <ul style="list-style-type: none"> • Industry reported that discards of School Shark from hook method are being released alive and they shouldn't all be considered as mortalities. The RAG supported further research on School Shark survivability from gillnet and longline methods. Robin cautioned that a shark that is released alive may not survive for long, measures of post capture survival are essential, but not currently available for school shark. • Industry noted that there is some confusion over the reason for discards and recommended that AFMA write to operators to clarify what the reason codes mean and ensure that life status is recorded for discards. • RAG also requested an update on the state of knowledge on School Shark post capture mortality including the fate of animals tagged with PSAT tags by SARDI as part of the 2012 auto-longline shark trial. • Concerns were noted over size selectivity of the line hook fishery for School Sharks as well as Gummy Shark. • Industry – have noted School Shark discards increased, an increase in TAC will not necessarily decrease discards as lease price would still likely remain high – quota market issue needs to be considered. • Reports that fishers often receive a lower price (up to \$2kg less) for larger School and Gummy Shark trunks from buyers. The reported state catches of School Shark seem low (e.g. WA) given the amount of conspecific Gummy Shark catch taken. Further clarification from states on amounts of catch, discards, length frequency, observer data etc. 	<p>Action 5: AFMA to find outcomes of the Paul Rodger's (SARDI) work on tagging School Shark as part of the 2012 shark auto-longline trial and circulate to the RAG</p>
<p>7. Measures to further reduce School Shark mortality and 2014 discard data</p>	<p>SharkRAG considered that this item had been adequately discussed during agenda item 6 and noted the tabled material provided on School Shark discard data.</p> <p>Points discussed:</p> <ul style="list-style-type: none"> • RAG members re-iterated the strong need for accurate monitoring to detect any potential targeting behaviour of School Shark, should it occur, and the need to capture any increased reporting of School Shark discards. • Strong need (raised as an action item at agenda item 6) for accurate recording by fishers 	

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	<p>of the amount of and reason for School Shark discarding, including information on the life status. AFMA to work with Industry and the RAG to improve education on the importance of these data.</p> <ul style="list-style-type: none"> • RAG noted the AFMA proposal to increase the School Shark to Gummy Shark catch ratio measure to 30 % (up from 20 %) to help minimize discarding, noting advice provided at the previous meeting. • <i>[Ed – post meeting Industry member David Stone advised that increasing the ratio may facilitate targeting by increasing available quota and may not address industry concerns raised on lease market manipulation].</i> 	
<p>8. 6000m net trial analysis update</p>	<p>SharkRAG noted comments provided to AFMA at their previous meeting on refining the analysis of the extended gillnet trial data (catch rates of 4200m vs extended 6000m nets). RAG noted the summary report on the trial will be circulated to the RAG out of session once finalised prior to SEMAC consideration in early 2015.</p> <p>RAG noted the tabled updated analysis provided at the current meeting:</p> <ul style="list-style-type: none"> • Catch rates have been further standardised • Additional factors are now being incorporated: month, area, depth, vessel and net length (14 lengths used as bins with >10 observations) • No apparent differences in catch rates between 6000m and shorter nets treatments in the preliminary analyses. • No major differences apparent in protected species interactions between the two treatments (noting a number of caveats) <p>AFMA member agreed to meet with certain SharkRAG members out of session to discuss questions about the analysis. It was agreed for AFMA to involve ABARES and CSIRO in any further analysis and that any formal report should be reviewed by ABARES and CSIRO scientists or external experts.</p>	<p>Action 6: ABARES, CSIRO and AFMA to assess the 6000m net trial analysis and consider whether there is any further benefit from collecting more data.</p> <p>Action 7: AFMA to ensure that the results of the 6000m trial analysis undergo peer review once available.</p>
<p>9. Other business</p>	<p>SharkRAG discussed additional items tabled as other business as follows:</p> <p>Movement of Gummy Shark in deep water (183m)</p> <p>Action item 22 of SharkRAG 1/2014 requested SharkRAG scientific members Jeremy Prince and Colin Simpfendorfer to provide an overview about Gummy Shark in waters deeper than 183m.</p>	

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	<p>The following points were noted:</p> <ul style="list-style-type: none"> • Very little work has been conducted to date on Gummy Shark in deep water with most tagging studies conducted in shallow water (e.g. Terry Walker's MAFRI studies), which indicate little movement. • Very little fishing effort outside of 183m compared to shallow waters making comparison of data difficult to interpret. • Deeper water likely a mix of size classes – resident populations. • Industry stated that during 1997-2003 there was targeting of School Shark in deeper water with a mix of size classes being caught unlike breeding aggregations of Gummy shark seen in shallow water of predominately one sex e.g. aggregations of all males in shallow water waiting for females). • Tagging work accomplished to date does indicate limited gene flow between states (a few animals found to be migrating long distances and found in different states) but generally Gummy Shark are more 'residential' and do not move more than 35km. <p>Updating the species summaries for 2015/16 season</p> <p>RAG updated the species summaries for Elephant Fish, Sawshark and School Shark for 2015. Gummy Shark was not updated. These will be circulated along with the minutes for comment.</p> <p>Industry concerns on changing skipper effects on assessments</p> <p>Industry members raised concerns that changing skippers on a boat would have large effects on catch rates and areas fished and felt this could potentially result in strong effects on the fishery assessment outcomes. As an action the RAG recommended that CSIRO work with the AFMA data team out of session to examine whether skipper effect could be examined.</p>	<p>Action 8: CSIRO (Malcolm Haddon) to work with the AFMA data team to examine the feasibility of incorporating change of skipper over time into CPUE standardizations.</p>
Meeting close	RAG chair closed the meeting at 4:35 PM by thanking participants for a productive meeting.	

Signed (Chairperson):

Date:

List of Attachments

- 1) **Actions arising from SharkRAG No. 1, 2014 and status.**
- 2) **Standing list of declared conflicts of interest**
- 3) **Actions arising from SharkRAG No. 2, 2014**

Attachment 1 – Actions arising from SharkRAG No. 1, 2014 15-16 October

Action #	Action Item	Responsibility	Status
SharkRAG 1/2014 Action 1	EO to circulate AFMA's new shark handling guide to RAG members once finalised.	RAG EO	In progress – draft still to be finalised and will be sent to RAG OOS.
SharkRAG 1/2014 Action 2	AFMA to produce a map giving an overview of Shortfin Mako catches to see whether they were spatially aggregated (as this species is +2t over the 5t trigger).	AFMA	In progress – OOS paper to be prepared and sent by EO for RAG information.
SharkRAG 1/2014 Action 3	AFMA to provide the RAG with more data on Boarfish and Wobbegong catch data (method, area, fate) as part of the data summary.	AFMA	In progress – OOS paper to be prepared and sent by EO for RAG information.
SharkRAG 1/2014 Action 4	AFMA to clarify source of data used in high risk species catches table i.e. does total mortality include discards.	AFMA	Complete – table uses catch disposal record data. Future tables to use logbooks data with discards where possible.
SharkRAG 1/2014 Action 5	AFMA to provide the RAG with the SEMAC TEP report on a regular basis.	AFMA	Ongoing – AFMA member to send RAG the SEMAC TEP summary report for interest.
SharkRAG 1/2014 Action 6	AFMA to convene dolphin mitigation subcommittee as soon as possible to discuss gear modifications and research.	AFMA	Complete – dolphin sub-committee meeting held 19 Nov 2014.
SharkRAG 1/2014 Action 7	AFMA to provide the RAG with a map of where school shark discards from logs have occurred.	AFMA	Complete – information tabled at this meeting.
SharkRAG 1/2014 Action 8	CSIRO (Robin Thompson) to prepare a short paper to the two shark industry associations on what School Shark data fishers can collect.	CSIRO - Robin Thomson	(RAG agreed for this action to be removed and actioned outside of the RAG)
SharkRAG 1/2014 Action 9	EO to chase up Kyne from FAS on status of extra SS/GS ageing data to be finished and supplied to CSIRO/AFMA.	RAG EO + Kyne at FAS	In progress – EO to action OOS

...continued – Actions arising from SharkRAG No. 1, 2014 15-16 October

SharkRAG 1/2014 Action 10	EO to circulate Kirsten's Bilgeman paper on dolphin population biology to be circulated to the RAG.	RAG EO	In progress – EO to action OOS
SharkRAG 1/2014 Action 11	EO to circulate Papers from Woods Hole conf. on marine mammal mitigation attended by AFMA to be distrib to RAG if available	RAG EO	In progress – EO to action OOS
SharkRAG 1/2014 Action 12	CSIRO to examine the trawl SS CPUE and integrate discards (as per tier 4 methodology) to examine if trend is revised.	CSIRO - Malcolm Haddon	Complete – information tabled at this meeting.
SharkRAG 1/2014 Action 13	AFMA to work with the RAG to create (and maintain as a live document in AFMA's sharepoint) a time line of major events in the GHAT e.g. move to quota, mgmt. measures, environmental fluctuations, buy back implementation etc.	AFMA (E.Raudzens) with assistance from SharkRAG members	In progress – Erik Raudzens (AFMA) is engaged in a project to catalogue CSIRO SharkRAG documents and will be engaged by AFMA to construct a timeline for the RAG.
SharkRAG 1/2014 Action 14	AFMA to write to PIRSA on behalf of the RAG seeking clarification of School Shark and Gummy Shark data supplied to AFMA.	AFMA & PIRSA	Complete – AFMA has sought clarification from
SharkRAG 1/2014 Action 15	EO to table an agenda item at the next SharkRAG meeting to discuss measures that may further help to reduce SS mortality e.g. best practice fishing method	RAG EO	Complete – information tabled at this meeting.
SharkRAG 1/2014 Action 16	AFMA to provide SharkRAG with a characterisation of School Shark discard data (from ISMP and logs) from across all methods ahead of next RAG meeting.	AFMA	Complete – information tabled at this meeting
SharkRAG 1/2014 Action 17	AFMA to supply CSIRO 2014 Gummy Shark catches to analyse whether unavoidable bycatch of School Shark is higher in some parts of the fishery.	AFMA - CSIRO	Ongoing – unable to be actioned prior to this meeting. Agreement that AFMA should attempt to supply CSIRO with additional School Shark and Gummy Shark data from the year of assessment (i.e. if assessment conducted in October, examine the additional few months of data from the start of the year, not just calendar year prior).

...continued - Actions arising from SharkRAG No. 1, 2014 15-16 October

SharkRAG 1/2014 Action 18	Observers to continue to collect Partial to Total Elephantfish length measurements and AFMA (mgmt. and observer team) to investigate why sawshark PAR-TOL measures are so noisy i.e. were all measurers using the same protocol?	AFMA observer team	Ongoing – observers have been informed to collect further lengths. AFMA to continue to work with CSIRO to ensure that enough lengths are supplied to finish the project.
SharkRAG 1/2014 Action 19	AFMA observer program to chase up status of Lakes Entrance Co-Op shark measurements taken by Jeff North.	AFMA observer team	In progress – Observer program have been informed. AFMA to pursue status.
SharkRAG 1/2014 Action 20	AFMA to refine the preliminary 6000m analysis based on CSIRO comments and send to RAG for information	AFMA - Erik Raudzens	In progress – update to presented at this meeting and final analysis to be sent OOS.
SharkRAG 1/2014 Action 21	EO to advise SEMAC EO to add consideration at the next SEMAC of carryover of any unused portion of the Gummy Shark Auto-longline sector trigger limit (10t) to the next season - to be considered at the next SEMAC (whether operators should be given the capacity to carry over any of the uncaught seasonal trigger).	RAG EO - SEMAC EO	Ongoing – RAG concerns that their recommendations and concerns on this broader issue (183m line) need to be passed on and considered by SEMAC. Agreed to keep this action as an ongoing item.
SharkRAG 1/2014 Action 22	RAG members with shark biology experience (Colin and Jeremy) to supply the RAG with a short summary of what is currently know about Gummy Shark movement/ size classes in deeper water i.e. deeper than 183m with references.	Colin Simpfendorfer and Jeremy Prince	Complete – Colin and Jeremy to provide verbal update on state of knowledge at this meeting.

Attachment 2 - Standing list of declared conflicts of interest - as of 20 Nov 2014

Participant & Membership	Interest declared
Brendan Kelaher Chair	SESSFRAG member. No other interests declared.
Robin Thomson Scientific	Undertakes CSIRO stock assessments. No pecuniary interests. Declared interest in Close Kin Genetic project (research investigator).
Colin Simpfendorfer Scientific	Has a potential pecuniary interest in research noting research interests are unlikely in particular to this fishery. Conducts assessments of Australian Sharks and Rays with FRDC funding.
Jeremy Prince Scientific	No interests declared pecuniary or otherwise.
Anissa Lawrence Conservation	Managing Director TierraMar Consulting. Consultant for Sustainable Shark industry Alliance (SSIA), consultant for a number of NGOs in the fisheries context. Conservation member on SEMAC. No other declared interests pecuniary or otherwise.
David Stone Industry	Executive Officer for Sustainable Shark Fishing industry. Declared interests in representing hook and gillnet industry member interests and in pursuing research for dolphin acoustic mitigation technology. SESSFRAG observer. Declared interest in RBCs.
Jason Pettit Industry	SA shark hook operator, SESSF quota holder. Declared interest in RBCs.
Kyri Toumazos Industry	South Australia/Bass Strait, shark fisher, boats fishing with hooks and gillnets. SESSF quota holder. Southern Rock Lobster Board CEO, Declared interests in RBCs.
David Power AFMA member	AFMA manager no interests declared, pecuniary or otherwise.
Andrew Trappett AFMA, RAG EO	AFMA management officer and SharkRAG EO, no interests declared, pecuniary or otherwise.

RAG Invited participants and observers declarations of interest

Malcolm Haddon CSIRO	Potential scientific research interest. SESSFRAG member, Sub-Antarctic RAG member, NPF RAG member.
Miriana Sporcic CSIRO	No interests declared, pecuniary or otherwise.
Nic Marton ABARES	No interests declared, pecuniary or otherwise.
George Day AFMA	No interests declared, pecuniary or otherwise
Dairmid Mather AFMA	No interests declared, pecuniary or otherwise

Attachment 3 – Actions arising from SharkRAG No. 2, 2014 20 November

	Action Item	Responsibility
SharkRAG 2/2014 Action 1	AFMA to ensure that catches of quota species from the SESSF Fishery Independent Survey are provided to CSIRO to include in total removals for assessment purposes.	AFMA, SESSF RAG
SharkRAG 2/2014 Action 2	In moving to electronic monitoring, AFMA and industry to work with skippers to promote the accurate recording of discards including life status.	AFMA and Industry members
SharkRAG 2/2014 Action 3	AFMA to write to operators to provide education on the use of discard codes in logbooks (i.e. when to use 'no-quota', 'damaged' etc.)	AFMA – note to be placed on GoFISH
SharkRAG 2/2014 Action 4	AFMA and RAG to pursue further information on School Shark (specifically) post capture survivability from Terry Walker and Richard Reiner's research.	AFMA and CSIRO
SharkRAG 2/2014 Action 5	AFMA to find outcomes of the Paul Rodgers SARDI work on tagging School Shark as part of auto-longline trial and circulate to the RAG.	AFMA
SharkRAG 2/2014 Action 6	ABARES, CSIRO and AFMA to assess the 6000m net trial analysis and consider whether there is any further benefit from collecting more data.	ABARES, AFMA, CSIRO
SharkRAG 2/2014 Action 7	AFMA to ensure that the results of the 6000m trial analysis undergo peer review once available.	AFMA
SharkRAG 2/2014 Action 8	CSIRO (Malcolm Haddon) to work with the AFMA data team to examine the feasibility of incorporating change of skipper over time into stock assessments.	CSIRO, AFMA data team