

# **Southern Squid Jig Fishery Resource Assessment Group (SquidRAG) Meeting 26**

## **Meeting minutes**

**Teleconference**

**14 October 2020**

**12:33-16:59**

The Chair opened the meeting at 12:33

## Agenda item 1. Preliminaries

### 1.1 Welcome and apologise

1. Dr Lianos Triantafillos, the Chair, welcomed members and observers to the meeting and made an Acknowledgement of Country statement recognising the Traditional Owners of the many lands in which we met and payed respect to Elders past, present and emerging.
2. SquiqRAG (the RAG) members noted the Acknowledgement of Country, that the meeting was being recorded and commenced proceedings.

### 3. Membership

Lianos Triantafillos	Chair
Debbie Wisby	Industry Member
Shijie Zhou	Scientific Member
Robert Curtotti	Economics Member
Terry Romaro	Industry Member
Dan Corrie	AFMA Member
Heather Johnston	Executive Officer

### 4. Observers

Kehani Manson	AFMA
Rocio Noriega	ABARES

### 1.2 Declarations of interest

5. The RAG members followed the conflict of interest declarations as outlined in [Fisheries Administration Paper 12 \(FAP12\)](#). Members and participants reviewed and updated the Declarations of Interest included at [Attachment A](#)
6. The industry members declared a potential conflict with [Agenda item 3 '2021 TAE advice'](#). Both industry members left the meeting while the RAG considered their interests and how they should be managed. The RAG decided they could be part of the discussion, but should not be in the meeting when the RAG is forming any advice for Agenda Item 3.
7. When the industry members returned to the meeting the RAG discussed that it is an option for industry to not leave the meeting when the advice is being formed and was subsequently decided by the RAG that industry members may remain in the meeting while advice is being formed, however they would not provide input to the formal recommendation.

### 1.3 Adoption of agenda

8. The RAG adopted the agenda ([Attachment B](#)) and added [Agenda Item 8 'SquidRAG terms of reference'](#) and changed Agenda Item 3 from '2021 TAE recommendation' to '2021 TAE advice'.

### 1.4 Minutes of previous meeting

9. The RAG noted that the final minutes of the SquidRAG 25 meeting on 23 July 2020 are available on the [AFMA website](#) ('Fisheries Management' – 'Committees'- 'Resource Assessment Groups'- 'SquidRAG')

## 1.5 Actions arising from previous meetings

10. The RAG noted the action items from previous meetings and the updates provided by the Executive Officer at [Attachment C](#).

## Agenda item 8. SquidRAG terms of reference

11. AFMA introduced the item and asked the RAG to note that in the absence of a specific terms of reference (TOR) for the RAG, the current membership does not allow for a quorum in accordance with FAP12.
12. The RAG noted the following update from AFMA:
  - In accordance with FAP12 a quorum is considered to be, unless a RAGs TOR state otherwise, the chair, an AFMA member, an industry member and at least two scientific members, covering the relevant scientific disciplines.
  - FAP12 does not recognise the economics member as a scientific member for the purpose of a quorum.
  - AFMA are of the opinion that where there is a declared conflict of interest it would not have any implications on whether there is a quorum if the RAG/MAC agrees that those members cannot be in the meeting when a recommendation is being made.
  - AFMA does not believe there will be any retrospective implications of not having a quorum.
  - The current membership does not allow for a quorum under FAP12 and this has been recognised previously.
  - Without a quorum, the RAG may provide advice but not formal recommendations.
  - AFMA felt that it was appropriate to maintain the current membership and establish a specific TOR.
  - AFMA have drafted a TOR for the RAG which will require sign off from the AFMA Commission.
  - The draft TOR proposed that a quorum for the RAG would be: the chair, AFMA member, industry member, scientific member and economic member.
13. The RAG made the following key points:
  - If a member is unable to attend they are able to provide a proxy however it is unclear if they would contribute towards the quorum.
  - Members are not able to fill two positions at once for the purpose of the quorum, for example the Chair could not also be the scientific member.
  - An issue with having a small RAG membership is that it would only take one member not being able to attend for there not to be a quorum.
  - While the economics member is important, they may not need to be included in the quorum.
  - It would not be appropriate to provide some recommendations, such as a TAE, without the scientific member at the meeting, and as such they would need to be part of the quorum.
  - Even with a revised TOR, only having one scientific member on the RAG could cause issues. This could be resolved by providing enough notice for the meeting to ensure members can attend, otherwise the meeting date could be moved.

**Action item 1.** AFMA to determine whether a proxy for a member would contribute towards the quorum.

**Action item 2.** AFMA to consider the advice provided by the RAG and provide an update draft TOR to the RAG for comment prior to sign off by the Commission.

## Agenda item 2. Fishery update

14. The Chair introduced the item and asked the RAG to note the AFMA Management, industry and economic updates for the Southern Squid Jig Fishery (SSJF) and that other management updates addressed in the Agenda for this meeting are not included in this update.

### 2.1 AFMA Management

15. The AFMA member provided an update on matters relevant to the management of the SSJF:

- The draft 2020-21 SSJF budget was distributed to industry associations and SEMAC for feedback in early March 2020.
- AFMA recently finalised the fishery budgets for incorporation in the Levy Regulations.
- There was a 25 per cent (\$27 306) decrease in the levy payable for the SSJF in 2020-21 (\$81 602) compared to the levy payable for 2019-20 (\$108 908).
- The decrease in the levies relates mainly to an under spend of the 2019-20 budget relating to consultant fees for the RAG, and the decrease in fishing activity during the 2019-20 financial year resulting in fewer data collection and management resources.

### 2.2 Industry

16. The RAG industry members provided an update on matters relevant to the fishery:

- There has been no fishing since the RAG last met in June 2020.
- Fishers and process are unsure what the impacts of the COVID-19 pandemic will be on market demand and beach price.
- It is expected that some operators will commence fishing in January 2021 but this will be dependent on processors ability to purchase, market demand and beach price.

### 2.3 Economic

17. The RAG economic member provided an update on matters relevant to the fishery:

- The 2019/20 financial year was a better year for beach price than previous years with the Sydney Fish Market price for that period being around \$5.80 per kg compared to 2017/18 which was around \$2.50 per kg.
- Despite the increase in beach price the Gross Value Product (GVP) has decreased due to the decrease in catches.
- If squid was to be exported it would be at a competitive exchange rate, which may also have an impact on imports as it is likely to make them more expensive.
- Fuel prices have decreased, relative to recent years, but it is unsure what will happen long term.
- ABARES will be investigating the broader impacts of the COVID-19 pandemic on the fishing industry in the coming months and are expected to publish a report on these findings.

## Agenda Item 3. 2021 TAE advice

18. AFMA introduced the agenda item and asked the RAG to provide advice to the South East Management Advisory Committee (SEMAC) and the AFMA Commission on the total allowable effort (TAE) for the SSJF 2021 fishing season starting on 1 January 2021.
19. The RAG noted the following update from AFMA:
  - Prior to the start of the SSJF fishing season (1 January each year), the AFMA Commission determines the TAE as the number of jig machines that can operate in the fishery. In setting the TAE, the AFMA Commission considers advice from the RAG and SEMAC.
  - When developing TAE advice, the RAG should have regard to the objectives set out in the [Southern Squid Jig Fishery Management Plan 2005](#) (The Management Plan), in particular, the need to ensure the ecological sustainability of target stocks and bycatch, and to maximise economic efficiency in the exploitation of fisheries resources.
  - The [SSJF Harvest Strategy](#) uses a system of within-season monitoring against catch triggers for the SSJF, SESSF Commonwealth Trawl Sector (CTS) and Great Australian Bight Trawl Sector (GABTS).
  - Gould's squid is the key commercial species in the SSJF and is also taken as byproduct in the CTS and GABTS of the SESSF, and taken as byproduct in Tasmanian and Western Australian managed fisheries. Only minor catches are taken in Victoria and New South Wales.
  - In Commonwealth fisheries, management controls relating to Gould squid only apply to the SSJF, there are no restrictions in terms of effort or catch quota that apply to the trawl sectors of the SESSF.
  - Gould's squid however is assessed in other fisheries, including the SESSF, through the Ecological Risk Assessment (ERA) process.
  - Gould's squid is assessed as 'not overfished' and 'not subject to overfishing' in the [2020 Australian Bureau of Agricultural and Resource Economics and Sciences \(ABARES\) Fishery Status Report](#).
  - The majority of squid catches by the SSJF are reported off the coast of Portland, Victoria, and Triabunna, Tasmania, with total catch and catch per unit effort showing considerable variability between seasons.
  - Although the low levels of annual reported bycatch would not be expected to produce measurable impacts on the broader ecosystem, a draft 2020 Bycatch and Discarding Workplan (the Workplan) has been developed which recognises the need to identify, quantify and verify bycatch in the SSJF allowing for bycatch management to be prioritised.
  - Minimal bycatch continues to be reported, with approximately 200 kg of swallowtail caught in one trip, reported during the 2020 fishing season (as of September 2020).
  - While the fishery is characterised by very high levels of latent effort, which leaves the potential for overcapitalisation, the TAE is typically set at a level to minimise the risk of this occurring without introducing any unnecessary impediments to efficiency.
  - The TAE level should also enable the fishery to sustainably exploit the resource and capitalise on a 'boom' season.
  - Only five of the 34 SFRs have been active in 2020.
  - Between January and April 2020 a seismic survey was conducted in an area of the fishery off Portland, Victoria.

- The Operational Area was approximately 93,000 km<sup>2</sup>, with 95% of this area having water depths greater than 200 m, this area also included a 15 km buffer around the proposed survey lines in most cases.
- According to the Tasmanian Scalefish Fishery Assessment 2018-19:
  - in 2017/18 a total of 528 t of Gould's squid were taken from Tasmanian waters, all but 1.0 t of which was caught by automatic jig and in 2018/19, a total of 155 t was caught, with only 24 t reported under scalefish licences;
  - the majority of the catch in 2018/19 was taken around South-Eastern Tasmania;
  - in the 2018/19 season, catches were lower than in 2017/18 although effort was similar, thus resulting in a notable drop in catch rate in Tasmania;
  - Gould's squid catches from the Tasmanian recreational sector were estimated at 23.7 t in 2017/18; and
  - in the 2012/13 ERA of the Tasmanian Scalefish Fishery, automatic squid jig fishing was considered a very low risk activity with regard to Gould's squid.

20. The RAG made the following key points:

- Although in recent years the CTS has caught more squid than the SSJF, the cost of the management of the fishery is the responsibility of SSJF statutory fishing right (SFR) holders as it relates to the specific management of the fishery rather than the stock.
- The SESSF ERA process accounts for the catch of Gould's squid in the CTS as it is a byproduct species in the fishery. The cost of this process is covered by SESSF SFR holders.
- In recent years there have been some CTS vessels targeting Gould's squid because of the increased beach price.

**Action item 3.** For the 2021 TAE meeting AFMA to produce maps that illustrate CPUE, as a potential line of evidence to estimate abundance.

21. In formulating it's advice, the RAG noted the following:

- The catch and effort for the 2020 fishing season (as of September 2020) is as follows:
  - SSJF catch is 67 tonnes, which is well below the trigger level of 5000 tonnes.
  - Trawl catch is approximately 296 tonnes, with 253 tonnes being caught by CTS and 43 tonnes caught by GABTS, which is well below the 2000 tonne trawl limit catch trigger.
  - Combined jig and trawl catch is around 363 tonnes, well below the combined limit catch of 6000 tonnes.
  - Five SSJF vessels have been active, well below the 30 vessel effort limit in the fishery.
- The catch and effort for the 2019 fishing season was as follows:
  - SSJF catch was 248 tonnes.
  - Trawl catch was 425 tonnes.
  - Combined jig and trawl catch was 673 tonnes.
  - Seven SSJF vessels were active.

- The TAE was 550 standard squid jigging machines in 2020, which has been set at this level since 2013.
- There are 4800 gear SFRs currently held in the fishery (as of September 2020).
- AFMA recommended that the 2021 TAE remain at 550 standard squid jigging machines which means 8.7 SFRs are required for each machine.

22. In formulating its advice, the RAG made the following key points:

- Effort and catch have decreased since 2019 but apart from that there does not appear to be any other changes in the dynamics of the fishery.
- The reduction in CTS and SSJF catch and the SSJF operator's limited ability to locate the stock may be an indication that there was a lower abundance of Gould's squid in 2020.
- The SSJF fleet size may have impacted operator's ability to locate stock, especially in a year of lower abundance.
- There has been a new operator enter the fishery in 2020 and there were a few operators who would normally fish who didn't in 2020.
- For those operators who did fish in 2020 many of them finished fishing earlier than usual due to it not being economical for them to continue fishing.

## Advice

23. Due to attendance at the RAG not meeting the requirements of what constitutes a quorum under section 4.8 of FAP12 the RAG was unable to provide recommendations but were able to provide advice.
24. The RAG provided the advice that the 2021 TAE be set at 550 squid jigging machines, as per the 2020 fishing season. With 4800 SFRs in the SSJF, this means 8.7 SFRs are required for each machine.
25. The RAG considered this level to be sustainable given the available information; and while there is latent effort in the fishery, the level maintains the capacity of the fleet to respond to changes in squid availability and/or markets.
26. The RAG also considered the fishery to be pursuing a proxy of maximum economic yield (MEY) as there is nothing constraining fishing, noting that search costs are prohibitive.

## Agenda Item 4. Harvest Strategy review

27. AFMA introduced the agenda item and asked the RAG to note that AFMA have proposed to delay the review of the current SSJF Harvest Strategy until there is sufficient additional data collected to undertake a depletion analysis and support an evaluation of catch triggers.
28. The RAG considered the background of the Harvest Strategy review, noting the following:
- The [Commonwealth Fisheries Harvest Strategy Policy](#) (HSP) and [Guidelines for the Implementation of the Commonwealth Fisheries Harvest Strategy Policy](#) (HSP Guidelines,) were revised in November 2018.
  - AFMA is required to review all Commonwealth fishery harvest strategies within four years of the implementation of the HSP and HSP Guidelines to ensure they meet the objectives and intent of the updated documents.
  - The current Harvest Strategy was implemented in 2007.

- While there has been no formal review since then, the RAG noted in 2014 that the triggers were precautionary and remained appropriate for the current state of the fishery at the time. However, the RAG also noted that a formal review would likely be required to ensure the current Harvest Strategy continues to meet the policy requirements once the revised HSP was released.
- At their June 2020 meeting the RAG considered and provided advice on proposed amendments to the current Harvest Strategy. The RAG made the following key points regarding the review of the current Harvest Strategy:
  - In the last decade, the size of the squid fishery has contracted to less than 10 vessels and catch has declined. No triggers have been reached since the current Harvest Strategy was implemented.
  - Triggers and decision rules should be reviewed to ensure that they are appropriate for the current state of the fishery and meet the objectives of the HSP and the HSP Guidelines.
  - Triggers should be more sensitive to increases in catch, and decision rules and management responses should be revised to implement a scalable approach.
  - Introducing lower level catch triggers, with decision rules to monitor/analyse in season trends (e.g. CPUE) would allow fishing impacts to be assessed without prompting costly management strategies (e.g. depletion analysis) before they are necessary.
  - Any change in the current trigger levels should be justified and use catch and effort data and any other information required to support such an analysis.
  - Currently, data collected within the SSJF would not support a more informative depletion analysis to that undertaken in the [Reducing Uncertainty in Fisheries Stock Status \(RUSS\) project](#) and the RAG agreed that additional data should be collected. A crew collected data program would be a cost effective approach for collecting length data for inclusion in future depletion analyses.
  - Length data may not be appropriate because the relationship between length and age is considered poor and highly influenced by environmental conditions for squid.
  - Industry members raised concerns that reducing the catch triggers may impede the economics of the fishery.
- The RAG supported the approach of establishing revised triggers and decision rules which escalate as catch and effort increase subject to the following action items being completed:
  - a) investigate methods and data requirements for evaluating whether the current Harvest Strategy catch triggers remain appropriate, including whether an updated depletion analysis is a cost- effective approach;
  - b) determine whether nominal and/or standardised CPUE is an appropriate performance measure against which triggers can be set; and
  - c) subject to the outcomes of (a) and (b), AFMA to draft a revised set of triggers and decision rules for consideration by SquidRAG.
- At their [July 2020 meeting](#) SEMAC considered the RAG advice and provided advice on proposed amendments to the current Harvest Strategy. SEMAC made the following key points regarding the review of the current Harvest Strategy:



- Standardised CPUE might not be a suitable index of abundance for this fishery because of the number of boats and dynamics of the squid stock. Operators spend a lot of time 'searching' which may influence or bias the catch and effort data.
- As the species are so short lived (11 months), triggers should be annual and within a season to monitor short-term impacts on the stock.
- Squid growth is highly plastic and driven by environmental factors, and SquidRAG should reconsider the value of collecting length information to inform stock assessments.
- Further thought should be given to developing clear and measurable objectives.

29. The RAG made the following key points:

- Although it was not a full review of the current Harvest Strategy, the review undertaken by the RAG and SEMAC in 2020 may be considered sufficient to meet the requirements of the HSP.
- It would be appropriate to formally note, either in the harvest strategy document itself or on the AFMA website, that the formal review of the harvest strategy has been postponed while additional data is being collected. However, given the uncertainty around the suitability of the current triggers, it would not be appropriate to re-endorse the harvest strategy in its current form.

**Action item 4.** AFMA to establish whether the requirement to review the Harvest Strategy under the HSP have been met.

30. The RAG considered an update from AFMA regarding action item 'a) Investigate methods and data requirements for evaluating whether the current Harvest Strategy catch triggers remain appropriate, including whether an updated depletion analysis is a cost-effective approach' from SquidRAG 25, noting the following:

- AFMA have been in discussions with the RAG scientific member, Dr Shijie Zhou, who advised there are better analytical methods available for depletion analysis to that undertaken as part of the RUSS project – such as the Bayesain framework which allows for the data from all years to be modelled together and for information to be shared between years.
- The Bayesain approach would allow for an updated analysis, despite very little additional data being available since the last analysis. In addition, unlike the analysis undertaken as part of the RUSS project, this approach does not make as many assumptions about recruitment, migration or natural mortality.
- This type of depletion analysis has been used for prawn species and it is possible that similar modelling can be carried out of the SSJF.

31. The RAG made the following key points:

- It would be difficult to use a traditional linear regression to estimate other variables that effect the depletion, including growth and recruitment.
- Previous studies have identified that there will be bias if you do not consider recruitment in the depletion analysis.
- Traditionally a depletion analysis separates years but because there is often limited data it may create difficulties in modelling. An alternative is to combine all years in one model.
- Standardised CPUE can be input into a depletion analysis, with the most useful standardisation being within season either by week or month rather than annual.

- A depletion analysis is a typically assessment method for squid fisheries around the world and is a key component of the current Harvest Strategy and it needs to be determined if it is appropriate to be included in a revised Harvest Strategy.

**Action item 5.** AFMA to provide an update at the next squidRAG meeting on:

- a) whether a depletion analysis can be done for Gould's squid; and
- b) if one can be completed which method might be most appropriate and what information would be required.

32. The RAG considered an update from AFMA regarding action item 'b) Determine whether nominal and/or standardised CPUE is an appropriate performance measure against which triggers can be set' from SquidRAG 25, noting:

- AFMA have been in discussion with ABARES regarding their assistance with determining whether nominal and/or standardised CPUE is an appropriate performance measure for the fishery.

33. The RAG made the following key points:

- CPUE may not be appropriate as an in-season limit trigger, however it may be useful as a trigger to increased monitoring and/or conduct further research such as a depletion analysis.
- It will need to be determined at what point does CPUE become an informative indicator for the fishery and what sort of indicator it provides, be it catchability or abundance.
- When establishing a standardised CPUE, in addition to the work completed by Fishwell, it would be valuable to determine what factors influence catchability of squid including economics, operator experience and spatial distribution.
- Consideration should be given to using CTS CPUE as well as SSJF CPUE, noting that the data is received electronically from the CTS so is not subject to the same delays as the SSJF paper logbooks.
- It may not be possible to set appropriate catch triggers annually, as discussed by SEMAC at their July 2020 meeting, without running a survey annually before the season starts.
- An alternative is to determine whether CPUE is a good index of abundance and if so a series of management responses/ triggers could be established.
- The work being proposed by ABARES will be in-kind and will only be undertaken if there is thought to be value to the fishery in undertaking the work.

**Action item 6.** ABARES to provide AFMA with a TOR/ Project scope that describes their proposed work on CPUE.

**Action item 7.** AFMA to circulate the TOR to the RAG and other relevant researchers such as Ian Knuckey and the scientific member on SEMAC for feedback before progressing the work.

34. The RAG considered an update from AFMA regarding action item 'c) Subject to the outcomes of (a) and (b), AFMA to draft a revised set of triggers and decision rules for consideration at the next SquidRAG meeting' from SquidRAG 25, noting the following:

- While a review of the current Harvest Strategy is required under the HSP and HSP guidelines, AFMA are proposing to delay the review until such time as catches increase and sufficient data is collected to support an updated depletion analysis.

- While the Bayesian approach described above will likely be an option moving forward, advice from the RAG and SEMAC to date suggests that additional data will improve the assessment.
- AFMA will include this advice to the AFMA Commission as part of the TAE setting process for the 2021 fishing season.
- Advice will be sought from the RAG each year regarding the risk of catches at their current level to ensure they remain sustainable.

35. The RAG made the following key points:

- The primary driver for reviewing the catch triggers in the fishery is that the current triggers in the Harvest Strategy are based on historic catches and there is some uncertainty about the current dynamics of the fishery.
- The RAG doesn't believe there are any sustainability issues with the current level of catch, however it isn't clear if there would be any sustainability concerns if catch was to increase significantly and whether the current triggers are still appropriate.
- It isn't clear whether a review would result in an increase or decrease to the triggers.

## Agenda Item 5. Draft Bycatch and Discard Workplan

36. AFMA introduced the agenda item and asked the RAG to consider and provide advice on the draft 2020 SSJF Bycatch and Discarding Workplan (Bycatch Workplan).

37. The RAG considered the background of the Bycatch Workplan review, noting the following:

- The [Commonwealth Fisheries Bycatch Policy](#) (the Bycatch Policy) and the [Guidelines for the Implementation of the Commonwealth Fisheries Bycatch Policy](#) (the Guidelines) were updated in 2018.
- The primary objective of the Bycatch Policy is to minimise fishing-related impacts on bycatch species in a manner consistent with the principles of ecologically sustainable development (ESD) and with regard to the structure, productivity, function and biological diversity of the ecosystem.
- At their June 2020 meeting the RAG were asked to review the progress against the action items outlined in the current Workplan and provide advice on issues to consider when updating the revised workplan. The RAG made the following key points:
  - Bycatch is very minimal in the fishery, however, it needs to be determined if the logbook reporting of bycatch is accurate.
  - The RAG has previously requested that AFMA write to industry to remind them of their obligation to report bycatch and discards in the fishery, with a particular focus on assisting with informing the ERA.

38. The RAG noted an overview of the structure and content of the Bycatch Workplan, including the Introduction, Fishery Description, Objectives, Ecological Risk Assessments, Bycatch Management Arrangements, Data Collection, Monitoring and Reporting.

39. The RAG made the following key points:

- The management accountability objectives proposed do not currently have any direct mention of consultation with industry.

**Action item 8.** AFMA to include an objective, developed in conjunction with industry members, which captures the need to consult with industry.

40. The RAG considered the proposed ecological risk assessment section noting:

- AFMA conducts ERAs to identify risks posed by fishing to the ecological sustainability of the species, habitats and communities with which Commonwealth fisheries interact;
- Ecological Risk Management (ERM) strategies are developed to respond to the outcomes of the ERA (which identifies high risk species) and address general bycatch and discarding issues in the fishery;
- bycatch is considered to be low in the SSJF, with only six tonnes of bycatch reported since logbooks were introduced in 2001, of which four tonnes were recorded as 'squids' in 2008;
- there was no bycatch reported between 2009 and 2018;
- the SSJF ERA was last undertaken in 2007; with an ERM developed for the SSJF in 2009;
- the assessment identified 216 TEP species which are theoretically found within the area of the fishery;
- none of these 216 species were assessed as being at risk from commercial fishing operations in the SSJF; and
- due to the low levels of bycatch, the SSJF has not been listed as a 'high priority' for an updated ERA. Unless a high priority issue, requiring immediate action, the SSJF is not scheduled to be reassessed until after 2022.
- ERA's are required to account for the fisheries impact on bycatch species and the broader ecosystem, however like other assessments, there needs to be a justification to undertake the ERA – there is less fishing effort now compared to when the last ERA was completed.
- An ERA for this fishery is not currently scheduled, as other fishery assessments have been prioritised.
- The cost of an ERA is dependent on the complexity and risk in the fishery.

## Action Items

41. The RAG considered the proposed action items section(summary provided at [Attachment D](#)), noting the following:

- Although the low levels of annual reported bycatch would not be expected to produce measurable impacts on the broader ecosystem, the Workplan recognises the need to identify, quantify and verify bycatch in the SSJF allowing for bycatch management to be prioritised.
- This which will be achieved through the monitoring of the actions at [Attachment E](#).
- Action items are designed to collect the information needed to improve data collection, noting there is no risk currently identified for bycatch species.

**Action item 9.** AFMA to seek adoption of a finalised revised Bycatch and Discarding Workplan from the RAG, once the RAG and SEMAC advice has been incorporated.

## Agenda Item 6. Draft Data and Monitoring Strategy

42. AFMA introduced the agenda item and asked the RAG to consider and provide advice on the draft 2020 SSJF Data and Monitoring Strategy (draft Data Plan).
43. The RAG consider the background of the SSJF Strategic Ecosystem Data Plan(current Data Plan) review, noting the following:
- The Management Plan requires AFMA develop and implement a strategy to collect, monitor and assess data that is related to the management of the fishery.
  - The draft Data Plan has been simplified, clearly defines the data requirements for the SSJF, ensures data collection is targeted, and supports effective management of the fishery.
  - At their June 2020 meeting the RAG were asked to review the current Data Plan and made the following key points:
    - The RAG supported AFMAs approach to rationalise the Data Plan and to incorporate the feedback provided regarding the Harvest Strategy review and Bycatch and Discarding Workplan review.
    - The metric used to measure effort needs to be reviewed, with a particular focus on capturing start and end depth, this would assist with providing a more informed estimate of effort and as a result would provide a more informed estimate of CPUE.
    - Anything that may impact on catch rates, such as fishing gear, should be captured in detail in the fishing logbook. This may need to be reviewed to ensure it captures the different efficiencies with different fishing gear.
    - The findings from the Fishwell Report should be incorporated into the review of the data plan.
  - The draft Data Plan provides an overview of the current data requirements to support effective management and reporting requirements in the SSJF (summary provided at [Attachment F](#)).
  - Some of the data identified in the draft Data Plan is already collected through existing monitoring programs.
  - Data gaps have been identified, which relate mainly to the additional catch and effort data to improve our understanding of the impact of fishing on Gould's squid and the broader ecosystem.
44. The RAG made the following key point:
- The review of the Data Plan is an opportunity to ensure that the right level of information is collected to assist with the management of the fishery.
45. The RAG noted an overview of the structure and content of the draft Data Plan, including Introduction, Fishery Description, Objectives, Data Collection, Monitoring and Reporting, Information and Data Requirements, Data Gaps and Actions, Data Management, Assessment and Review .

### Data gaps and actions

46. The RAG considered the proposed data gaps and actions section, noting the following:
- Many of the data requirements for the SSJF are collected through existing monitoring programs, including daily fishing logbooks and catch disposal records.
  - Various data gaps have been identified based on advice from the RAG, the findings of various research reports and discussions with relevant experts, most of which relate to additional catch and

effort data to improve our understanding of the impact of fishing on Gould's Squid and the broader ecosystem.

- If the RAG identified any data/information that would be valuable to collect, AFMA will work with industry to ensure that this is collected.

47. The RAG made the following key points:

- The distance a vessel travels in a single drift is dependent on a number of factors such as the tide, if the vessel is on anchor or using a parachute and as a result it would be valuable to collect start and end location and whether the vessel is on anchor, using a parachute or drifting.
- The SSJF industry are very engaged and it will be important for AFMA to have a discussion with them regarding what they consider to be the key factors that influence catch. It is anticipated that this information might include type of machine used, skipper experience and year of gear installation.
- Currently the 'gear and skippers details' page is only completed once in the logbook but it might be appropriate to include some additional pages and ask that it is filled out if any of the information changes during the duration of the logbook.
- With regards to the information currently collected in the logbooks, it should be assessed how often the information is required such as collecting logbook information on a shot by shot basis rather than a daily and the number of machines used per shot rather than in the gear and skipper details page at the front of the book.
- Due to squid being attracted by light it would be valuable to collect information/data on anything connected to light including the number, wattage and colour of light bulbs, as well as cloud cover.
- Additional environmental data, like that used in the Fishwell report, could be used to better understand aspects in the fishery such as catch rates or to provide more insight for operators on locating squid.
- There are alternative options for collecting environmental data outside of that collected by operators including data collected by the Integrated Marine Observing System (IMOS), noting that it will be dependent on the scale of information required.
- IMOS are currently reviewing their five year strategic plan and are looking to find boats of opportunity to collect various types of environmental data for them.
- There is currently a field in the logbook which intends to collect information on sea surface temperature however noting this information can be collected from alternative sources an alternative could be to collect temperature at fishing depth.
- There is a poor relationship between age and length which means length is not a reliable predictor of age however length information would be valuable when developing CPUE standardisations for SSJF and CTS.
- While statoliths are the most informative way to estimate growth and give an indication on the stock, there is a cost implication and time delay in processing the information so it is likely to only be informative on long term analysis of recruitment and stock dynamics.
- A depletion analysis is based on the initial abundance of the stock, however it is unclear if there is a suitable method to convert weight to a number of individuals over time.

- Due to the different fishing practices and wider distribution, there would be value in collecting length information from the squid caught by the CTS fleet compared to the SSJF where the large and more aggressive squid are likely to be caught.

**Action item 10.** AFMA to arrange a meeting with operators to discuss the proposed actions and additional data collection prior to the revised Data Plan being implemented.

**Action item 11.** When reviewing the paper logbook, AFMA to establish what the timeline might be for transitioning to electronic logbooks.

**Action item 12.** AFMA to contact IMOS regarding whether it may be an option to have some of the SSJF vessel become boats of opportunity.

48. The RAG made the following key points with regards to data management:

- Although it will be possible for AFMA to collect additional data, it will require changes to the AFMA database in-order to store some of the additional information.

## Advice

49. A summary of the identified data gaps and actions identified by AFMA and the RAG is provided at [Attachment G](#)

50. The RAG also provided the advice that there needs to be a clear definition of what is meant for the different types of information to be collected and when designing a new logbook, where possible, the design should focus on being user friendly. Such as providing options to be ticked/circled rather than having to write in the response each time.

**Action item 13.** AFMA to seek feedback from Fishwell and the SEMAC scientific member on the draft Data Plan.

## Agenda Item 7. 2021 meeting schedule

51. AFMA asked the RAG to note that there will be a meeting in mid-2021 to discuss research priorities and provide an update on any relevant action items.

## Close of meeting

52. The Chair thanked the RAG for their contribution and closed the meeting at 16:59.

## Attachment A- Adopted agenda



Australian Government  
Australian Fisheries Management Authority

## Southern Squid Jig Fishery Resource Assessment Group (SquidRAG)

### Meeting #26 – 14 October 2020- teleconference

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#### Agenda

Time (AEDT): 12:30-17:00

Location: Microsoft Teams

Approximate time	Item	Purpose	Lead presenter
12:30 (25 min)	<b>Agenda item 1. Preliminaries</b>		
	1.1 Welcome and apologies	For action	Chair
	1.2 Declaration of interests	For action	Chair
	1.3 Adoption of agenda	For action	Chair
	1.4 Minutes from previous meeting	For noting	Chair
	1.5 Actions arising from previous meetings	For noting	Executive officer
12:55 (5 min)	<b>Agenda item 8. SquidRAG terms of reference</b>	For noting	AFMA member
13:00 (30 min)	<b>Agenda item 2. Fishery update</b>		
	2.1 AFMA Management	For noting	AFMA member
	2.2 Industry	For noting	Industry members
	2.3 Economic	For noting	Economic member
13:30 (60 min)	<b>Agenda item 3. 2021 TAE advice</b>	For advice	AFMA member
14:30 (30 min)	<b>Agenda item 4. Harvest Strategy Review</b>	For noting	AFMA member



Approximate time	Item	Purpose	Lead presenter
15:00 (10 min)	<b>Break</b>		
15:10 (45 min)	<b>Agenda item 5. Draft Bycatch and Discard Workplan</b>	For advice	Executive officer
15:55 (60 min)	<b>Agenda item 6. Draft Data and Monitoring Strategy</b>	For advice	AFMA member
16:55 (5 min)	<b>Agenda item 7. Other Business</b>	For noting	AFMA member
17:00	<b>Close</b>		

## Attachment B- register of interest

Table 1. Declaration of interest

Name	Membership	Declared interests
Lianos Triantafillos	Chair	No interests declared, pecuniary or otherwise. Involved in broad research projects though none specifically squid related.
Debbie Wisby	Industry Member	CEO of a fishing Company in Tasmania - scallops, squid and shark. Partner owns Tasmania State Scallop Units and Entitlements. Commonwealth Fish Receiver. Local Government Councillor. Tasmania Scallop Fishery Advisory Committee member.
Shijie Zhou	Scientific Member	CSIRO undertakes research on a range of fishery related matters. No interest declared, pecuniary or otherwise.
Robert Curtotti	Economics Member	ABARES undertakes research on a range of commonwealth fisheries related matters. No interests declared, pecuniary or otherwise.
Terry Romaro	Industry Member	Director of a company that owns ETBF boat SFR's, minor line SFR's, ETBF longline SFR's, WTBF boat SFR's, WTBF longline SFR's, Coral Sea Trawl permit, Western Skipjack purse seine permit, SPF purse seine, mid-water trawl SFR's, SPF quota SFR's and Squid (SSJF)Units. Shareholder of a company that owns shares in a proposal to fish with foreign long liners in the WTBF. Invited participant on SBTMAC, SquidRag and industry representative at the Commission for the Conservation of Southern Bluefin Tuna & IOTC.
Dan Corrie	AFMA Member	No interests declared, pecuniary or otherwise.
Heather Johnston	Executive Officer	No interests declared, pecuniary or otherwise.
Kehani Manson	Observer, AFMA	No interests declared, pecuniary or otherwise.
Rocio Tronoso Noriega	Observer, ABARES	ABARES undertakes research on a range of commonwealth fisheries related matters. No interests declared, pecuniary or otherwise.

## Attachment C- Status of actions and action items

Complete/Redundant	Underway	Yet to start	Need further advice
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Table 2. Progress of action items from previous meetings

	RAG meeting #	Agenda Item	No.	Action Item	Agency/Person Responsible	Timeframe	Progress
	23	3.2	1	A non- technical summary of the key findings of the project to be circulated to industry	Fishwell Consulting	As a priority	The updated Executive Summary is provided as an attachment to Agenda Item 6.
	23	3.2	2	SquidRAG to provide any comments on the Fishwell project report on 'Locating and targeting of squid' prior to it being made publically available	SquidRAG	As a priority	Comments to be sought at SquidRAG 26 and out of session if required.
	23	3.2	3	AFMA to liaise with Fishwell Consulting regarding the feasibility of corroborating this seasons (2018) data with the findings outlined in the report	AFMA	As a priority	AFMA have provided 2018 catch data and Fishwell are currently working on this action item. An updated Executive Summary has been provide to supplement the original reports.
	23	3.3	4	A draft data strategy for the SSJF to be developed by AFMA that incorporates suggestions made by the SquidRAG with respect to collect data in the fishery.	AFMA	SquidRAG 26	To be considered at Agenda Item 6
	25	2	1a	investigate methods and data requirements for evaluating	AFMA		To be considered at Agenda Item 4

			whether the current harvest strategy catch triggers remain appropriate, including whether an updated depletion analysis is a cost-effective approach			
25	2	1b	determine whether nominal and/or standardised CPUE is an appropriate performance measure against which triggers can be set	AFMA		AFMA have begun discussions with ABARES regarding their assistance with this action item  Update to be provided at SquidRAG 26
25	2	1c	subject to the outcomes of (a) and (b), AFMA to draft a revised set of triggers and decision rules for consideration at the next SquidRAG meeting	AFMA	Once Action items 1b and 1c from SquidRAG 25 are completed	Suggested amendment: AFMA to review the timing of the HS review subject to a) investigating methods and data requirements for evaluating whether the current harvest strategy remains appropriate, including when it would be appropriate to complete an updated depletion analysis and b) determining whether nominal and/or standardised CPUE is an appropriate performance measure against which triggers can be set
25	4	2	write to operators to remind them of their obligation to report bycatch and discards in the fishery and highlight the importance of this to inform the ERA	RAG industry members and AFMA	Prior to the start of the 2021 fishing season	AFMA to liaise with industry members regarding a joint approach

**Table 3. New action items from SquidRAG 26**

Agenda Item	Action item #	Action Item	Agency/ person	Timeframe
8	1	AFMA to determine whether a proxy for a member would contribute towards the quorum	AFMA	Prior to SquidRAG 27
8	2	AFMA to consider the advice provided by the RAG and provide an update draft TOR to the RAG for comment prior to sign off by the Commission	AFMA	Prior to SquidRAG 27
3	3	For the 2021 TAE meeting AFMA to produce maps that illustrate CPUE, as a potential line of evidence to estimate abundance	AFMA	For 2021 TAE meeting
4	4	AFMA to establish whether the requirement to review the Harvest Strategy under the HSP have been met	AFMA	Prior to SquidRAG 27
4	5	AFMA to provide an update at the next squidRAG meeting on: <ul style="list-style-type: none"> <li>a) Whether a depletion analysis can be done for Gould's squid; and</li> <li>b) If one can be completed which method might be most appropriate and what information would be required</li> </ul>	AFMA	SquidRAG 27
4	6	ABARES to provide AFMA with a TOR/ Project scope that describes their proposed work on CPUE.	ABARES	
4	7	AFMA to circulate the TOR to the RAG and other relevant researchers such as Ian Knuckey and the scientific member on SEMAC for feedback before progressing the work	AFMA	Once action item 6 is completed
5	8	AFMA to include an objective, developed in conjunction with industry members, which captures the need to consult with industry	AFMA	Prior to the implementation of Bycatch and Discarding Workplan
5	9	AFMA to seek adoption of a finalised revised Bycatch and Discarding Workplan from the RAG, once the RAG and SEMAC advice has been incorporated	AFMA	December 2020

Agenda Item	Action item #	Action Item	Agency/ person	Timeframe
6	10	AFMA to arrange a meeting with operators to discuss the proposed actions and additional data collection prior to the revised Data Plan being implemented	AFMA	Prior to SquidRAG 27
6	11	When reviewing the paper logbook, AFMA to establish what the timeline might be for transitioning to electronic logbooks	AFMA	Prior to SquidRAG 27
6	12	AFMA to contact IMOS regarding whether it may be an option to have some of the SSJF vessel become boats of opportunity	AFMA	Prior to SquidRAG 27
6	13	AFMA to seek feedback from Fishwell and the SEMAC scientific member on the draft Data Plan	AFMA	Prior to SquidRAG 27

## Attachment D – Bycatch Workplan action items

Table 5. SSJF Bycatch and Discarding Workplan Action Items

Actions	Risk/ issues to be addressed	Timeframe	Cost	Performance indicators	Milestones
Undertake an updated ERA for the fishery	To provide an ERA that reflects the current state of the fishery	Currently scheduled after 2022.	Approx \$20k	ERA completed	AFMA and CSIRO to complete ERA SquidRAG and SEMAC to consider the result of the ERA
Annual report to industry regarding reporting of bycatch and discards in logbooks and CDRs	Accurate reporting of Bycatch and discards data	Ongoing	Within existing staff time.	Reports distributed to industry annually.	AFMA to review logbook and CDR data for bycatch and discards AFMA to report the results of the review to SquidRAG Report to be provided to industry on their reported bycatch and discards as a part of the season rollover.
Annual report to industry regarding reporting of interactions with TEP species	Accurate reporting of TEP species interactions.	Ongoing	Within existing staff time.	Reports distributed to industry annually.	AFMA to review logbook data for TEP interactions AFMA to report the results of the review to SquidRAG Report to be provided to industry on their reported TEP species interactions as a part of the season start

## Attachment E – Bycatch management arrangements

Table 4. Summary of management arrangement/s for each of the Workplans objectives

Objective	Management arrangement/s	Justification
<p>Interactions between squid jigging and general bycatch species, to the extent practicable, are avoided and minimised to ensure species biomasses are maintained at a level where the risk of recruitment impairment is not considered as unacceptably high.</p>	<p>No specific management arrangement</p>	<p>Due to the highly selective nature of squid jigging there is minimal bycatch and protected species interactions, meaning the level of risk to recruitment of bycatch species is considered low</p>
<p>The outcomes of the ERA are applied for prioritising the management of high, medium and low risk species once risk categorisation is verified and validated.</p>	<p>No specific management arrangement</p>	<p>No species assessed in the 2007 ERA were identified as being at risk from commercial fishing operations.</p>
<p>If the ERA identified bycatch species, where appropriate, monitor and measure performance against benchmarks that will detect substantial changes or trends in key drivers that may indicate increase risk and trigger re-assessment.</p>	<p>No specific management arrangement</p>	<p>No priority species/groups identified to be addressed under a bycatch and discarding workplan</p>
<p>Encourage industry-led solutions to minimise interactions with general bycatch utilising an individual accountability approach.</p>	<p>Industry have previously implemented a Code of Practice (including bycatch handling issues) for the fishery.</p> <p>No specific management arrangement</p>	<p>Bycatch is generally considered to be low, which is supported by the outcomes of the ERA. If any issues are identified, AFMA will encourage industry-led solutions where appropriate.</p>
<p>Management decisions, arrangements and strategies are clearly explained, transparent, documented and communicated to industry and the broader community.</p>	<p>Implementation of fishery specific:</p> <ul style="list-style-type: none"> <li>• Management Arrangements Booklet, updated annually</li> <li>• Concession conditions, updated annually</li> </ul>	<p>Management decisions, arrangements and strategies are developed in consultation with relevant stakeholders including SquidRAG and SEMAC.</p>



Objective	Management arrangement/s	Justification
	<ul style="list-style-type: none"> <li>• Bycatch and Discarding Workplan</li> <li>• Data and Monitoring Strategy</li> <li>• Harvest Strategy</li> </ul> Consultation with <ul style="list-style-type: none"> <li>• SquidRAG (minutes published on AFMA website)</li> <li>• SEMAC (minutes published on AFMA website)</li> </ul>	Management arrangements and strategies are made publically available on the AFMA website.
Reporting obligations under fisheries policies and guidelines are met.	Industry are required to report catch and discards for all species in daily fishing logbooks and catch disposal records (CDR).	The daily fishing logbooks and CDRs are designed to ensure reporting obligations under fisheries policies and guidelines are met.
Management responses are proportionate to the conservation status of affected species and ERA results and are proportionate with the cumulative risk of fishing on the species.	Boat operators are required to report all catch and discards, including interactions with protected species, in daily fishing logbooks.	There is considered to be a low cumulative risk of fishing on bycatch and protected species, however, logbook reporting allows for catch and interactions to be monitored.
Management approaches are consistent with the principle of the risk-cost-catch trade off.	<ul style="list-style-type: none"> <li>• Harvest Strategy</li> <li>• Bycatch and Discarding Workplan</li> <li>• Data and Monitoring Strategy</li> <li>• Concession Conditions</li> </ul>	Management arrangements in the fishery are considered consistent with the principles of risk-cost-catch trade off given the low impact and value of the fishery.

## Attachment F – Draft data plan information and data requirements

**Table 6. Summary of management approaches, the component of the fishery it relates to, the data/information sources and the legislative objectives.**

Management Approach	Component	Data/ Information Sources	Legislative objectives
<b>Harvest Strategy Implementation</b> (including triggers, performance measures and decision rules)	Key Commercial Species (Gould's squid)	<ul style="list-style-type: none"> <li>Logbook</li> <li>CDR</li> <li>Research</li> <li>VMS</li> </ul>	<ul style="list-style-type: none"> <li>Maximise economic returns</li> <li>Ecological sustainable development</li> <li>Efficient and cost effective management</li> </ul>
<b>ERA and ERM Framework</b>	Byproduct, Bycatch and Protected Species	<ul style="list-style-type: none"> <li>Logbook</li> <li>CDR</li> <li>Research</li> <li>VMS</li> </ul>	<ul style="list-style-type: none"> <li>Ecological sustainable development</li> <li>Efficient and cost effective management</li> <li>Minimise interactions, avoid harm, injury and death</li> </ul>
<b>Performance Reporting</b>	All Components	<ul style="list-style-type: none"> <li>Logbook</li> <li>CDR</li> <li>Research</li> <li>ABARES Status Report</li> </ul>	<ul style="list-style-type: none"> <li>Accountability</li> </ul>

## Attachment G – Identified data gaps and action to collect them

Table 7. Identified data gaps and actions to collect them

Data type	Variables	Data Source *potential	Current coverage	Purpose and need	Is data currently verified?	Data gap	Action
Spatio-temporal	Start and end latitude and longitude of fishing operation	Logbooks	100% (start) 0% (end)	Improved spatial information would allow for a better measure of effort and improve ability to correlate catch/catch per unit effort (CPUE) with environmental variables	Yes - VMS	End location not currently collected	Collect start and end location in logbooks
	Date and time of start and end of fishing operation	Logbooks	100% (date) 0% (time)	Catch rates can vary depending on time of year and time of day	Yes - VMS	Time of start and end of shot not currently collected.	Collect start and end time in logbooks rather than total fishing time
Environmental	Sea surface temperature	Logbooks	100%	Species availability and encounterability impacted by environmental conditions	No	Unsure how accurate current data is.	Use alternative options for collecting sea surface temperature  Collect temperature at depth

Data type	Variables	Data Source *potential	Current coverage	Purpose and need	Is data currently verified?	Data gap	Action
	Current strength	Logbook *	0%	Species availability and encounterability impacted by environmental conditions	No	Not currently collected.	Collect current strength
	Sea state	Logbook *	0%	Species availability and encounterability impacted by environmental conditions	No	Not currently collected.	Collect information on sea state, such as wave height
	Turbidity	Logbook *	0%	Species availability and encounterability impacted by environmental conditions	No	Not currently collected.	Collect information on turbidity
	Cloud cover	Logbook	0%	Species availability and encounterability impacted by environmental conditions	No	Not currently collected.	Collect information on cloud cover
	Moon phase	Logbook *	100%	Species availability and encounterability impacted by environmental conditions	No	Not currently collected.	Use alternative options for collecting moon phase

Data type	Variables	Data Source *potential	Current coverage	Purpose and need	Is data currently verified?	Data gap	Action
Vessel and gear	-	Logbook *	0%	To inform CPUE standardisations.	No	Not currently collected.	Discuss with industry the different variables that may affect CPUE
Discarded Catch	Gould's Squid	Logbooks	100%	Provides information on the level of discarded Gould's squid in the fishery	No	Unclear how accurate reporting is.	Action in Bycatch and Discarding Workplan - write to operators as part of season rollover.
	Bycatch	Logbooks	100%	Provides information on the level of bycatch discarding in the fishery	No	Unclear how accurate reporting is.	Action in Bycatch and Discarding Workplan - write to operators as part of season rollover.
	Depredation	Comments section of logbooks	100%	Provides information on the loss of catch due to depredation	No	Unclear how accurate reporting is.	Discuss with operators the extent of depredation in the fishery

Data type	Variables	Data Source *potential	Current coverage	Purpose and need	Is data currently verified?	Data gap	Action
TEP Interactions	Protected Species	Logbooks	100%	Provides information on the level of interaction with TEPs in the fishery	No	It is unknown how accurate reporting is	Action in Bycatch and Discarding Workplan - write to operators as part of season rollover.
Biological	Length frequency	Crew-collected* SESSF ISMP*	0%	To inform depletion analysis	No	Not currently collected.	Collect length information in the CTS and SSJF
	Statoliths	Crew-collected* SESSF ISMP*	0%	To inform depletion analysis	N/A	Not currently collected.	Do not collect