



Australian Government

Australian Fisheries Management Authority

Southern and Eastern Scalefish and Shark Fishery Resource Assessment Group (SESSFRAG) Data Meeting 2022

Meeting minutes

23 – 24 Aug 2022

Melbourne

Table of Contents

Agenda.....	3
Agenda item 1. Preliminaries.....	3
1.1 Welcome and apologise	3
1.2 Declarations of interest	4
1.3. Adoption of agenda	5
1.4. Minutes of previous meeting.....	5
Agenda item 2 – Actions arising from previous meetings.....	5
Agenda item 3: SESSF TAC setting process guidelines and timeframes	5
Agenda item 4: Non-eastern Orange Roughy stock assessment options	6
Agenda item 5: Step-up TACs during MYTAC periods	7
Agenda item 6: Application of CKMR for key SESSF species.....	8
Agenda item 7: Ecosystem Traits Index presentation	10
Agenda item 8: Data collection programs.....	11
Agenda item 9: Catch & Discard Data.....	14
Agenda item 10: MYTAC Analysis.....	17
Agenda item 11: SESSF Data and ISMP plans: recommended changes.....	21
Agenda item 12: 2023 Chairs meeting dates.....	21
Agenda item 13: Other business	21
Close of meeting	22
Attachment A - Register of Interest	22
Attachment B- Action Items.....	28
Attachment C – Summary of Action Items and Recommendations arising from SESSFrag Data meeting August 2022	30

Agenda

Location: Melbourne/MS Teams

Chair Name: Dr Cathy Dichmont

Agenda Item	Purpose	Presenter
1. Preliminaries a. Acknowledgement of Country, welcome and apologies b. Declarations of interest c. Adoption of Agenda d. Minutes from previous meetings	For decision	Cathy Dichmont
2. Actions arising from previous meetings	For information	AFMA ¹
3. SESSF TAC ² setting process guidelines and timeframes	For advice	AFMA/Dr Paul Burch
4. Non-eastern Orange Roughy stock assessment options	For discussion	Dr Heidi Pethybridge
5. Step-up TACs during MYTAC ³ periods	For advice	AFMA
6. Application of CKMR ⁴ for key SESSF species	For discussion	Dr Pia Bessell-Browne
7. Ecosystem Traits Index presentation	For discussion	Dr Beth Fulton
8. Data collection programs a. ISMP ⁵ annual report b. SIDaC ⁶ annual report c. Fish Ageing Services (FAS) annual report (including ageing plan for Orange Roughy)	For information	a. AFMA b. Mr Simon Boag c. Dr Kyne Krusic-Golub
9. Catch & Discard Data a. 2022 Discard Reports (Data to 2021) b. 2022 Catch report (Data to 2021)	For advice	a. Dr Roy Deng and Ms Toni Cannard b. Dr Franzis Althaus
10. MYTAC Analysis a. Acoustic surveys undertaken for Blue Grenadier and Cascade Plateau Orange Roughy b. MYTAC outcomes	For advice	a. Dr Tim Ryan b. AFMA
11. SESSF Data and ISMP plans: recommended changes	For advice	AFMA
12. 2023 Chairs meeting dates	For decision	EO
13. Other business		

¹AFMA – Australian Fisheries Management Authority, ²TAC – Total Allowable Catch, ³MYTAC – Multi-Year Total Allowable Catch
⁴CKMR – Close Kin Mark Recapture, ⁵ISMP – Integrated Scientific Monitoring Program, ⁶SIDaC – Shark Industry Data Collection

Agenda item 1. Preliminaries

1.1 Welcome and apologise

Dr Cathy Dichmont (the Chair), welcomed members, invited participants and observers to the meeting and made an Acknowledgement of Country paying our respects to this country's First People and Traditional Custodians of the land throughout Australia. Acknowledging Australia's Traditional Custodians of Country and recognising their continued connection to land, waters and community. Paying our respects to them and their cultures and to Elders past present and emerging.

Table1. Meeting attendees

Chair	Dr Cathy Dichmont	
SESSFRAG members	Mr Lance Lloyd, Scientific Member (GABRAG ⁷ Chair)	Dr Sarah Jennings, Economic member
	Dr Paul McShane, Scientific Member (SERAG ⁸ Chair)	Mr Dan Corrie, AFMA member
	Mr Sandy Morison, Scientific Member (SharkRAG Chair)	Dr Beth Fulton, Scientific member (CSIRO)
Invited participants	Mr Simon Boag, Industry	Dr Toni Cannard, CSIRO
	Dr Franzis Althaus, CSIRO	Dr Rich Little, CSIRO
	Dr Natalie Dowling, CSIRO	Dr Miriana Sporcic, CSIRO
	Dr Caroline Sutton, CSIRO	Dr Robin Thomson, CSIRO
	Mr Neil MacDonald, Industry	Dr Geoff Tuck, CSIRO
	Dr Paul Burch, CSIRO	Dr Ian Knuckey, Fishwell Consulting
	Dr Pia Bessell-Browne, CSIRO	Dr Kyne Krusic-Golub, Fish Ageing Services
	Dr Sandra Curin Osorio, CSIRO	Dr Tim Ryan, CSIRO
	Dr Heidi Pethybridge, CSIRO	Dr Malcolm Haddon, CSIRO
	Dr Roy Deng, CSIRO	
AFMA	Mr Aaron Puckeridge	Ms Rebecca Jol
	Dr Mark Grubert	Mr Tamre Sarhan
	Dr Lara Ainley	Mr Henry Oak
	Mr Roshan Hanamseth	
Observers	Dr Geoff Liggins, NSW DPI	Mr Daniel Wright, ABARES
	Ms Krystle Keller, ABARES ⁹	Mr James Woodhams, ABARES
Exec. officer	Dr Nastaran Mazloumi, AFMA	

⁷GABRAG –Great Australian Bight Resource Assessment Group, ⁸SERAG –South East Resource Assessment Group, ⁹ABARES –Australian Bureau of Agricultural and Resource Economics and Sciences

1.2 Declarations of interest

The RAG followed the conflict-of-interest management process (as outlined in *Fisheries Administration Paper 12*) and updated the Declarations of Interest (Attachment A) via email prior to the meeting.

The RAG members considered the potential for some pecuniary interest for particular research and industry attendees with agenda items listed in Table 2.

The RAG recognised the attendees' knowledge and ability to contribute to the discussions and agreed that it was appropriate for them to participate in the discussion. However, formal recommendations would be finalised by the members in the absence of conflicted members and attendees.

Table 1: Agenda items with declared conflicts of interest

Agenda Item	Declared conflict
Non-eastern Orange Roughy stock assessment options	Mr Simon Boag, Mr Neil MacDonald and Dr Kyne Krusic-Golub
Step-up TACs during MYTAC periods	Mr Simon Boag and Mr Neil MacDonald
Ecosystem Traits Index presentation	CSIRO
Application of CKMR for key SESSF species	Dr Kyne Krusic-Golub and CSIRO
Data collection programs	CSIRO, Dr Ian Knuckey
Catch and Discard data	CSIRO, Dr Kyne Krusic-Golub, Dr Ian Knuckey
MYTAC Analysis	Mr Simon Boag and Mr Neil MacDonald, Dr Kyne Krusic-Golub, Dr Ian Knuckey
SESSF Data and ISMP plans: recommended changes	Mr Simon Boag, Mr Neil MacDonald, Dr Kyne Krusic-Golub, Dr Ian Knuckey and, CSIRO

1.3. Adoption of agenda

The RAG adopted the agenda (Page 1) as final.

1.4. Minutes of previous meeting

The RAG endorsed the April 2022 Chairs Meeting minutes as a true representation of the outcomes of that meeting.

Agenda item 2 – Actions arising from previous meetings

The status of the actions is detailed in Attachment B. Items marked in green have been completed. Those in yellow are underway and those marked in red require SESSRAG input.

AFMA provided the RAG with an update on the status of action items arising from previous SESSFRAG meetings. The following points were discussed:

- Action item 3 “Establish a process for reviewing stock assessments using blue grenadier as a case study”
AFMA proposed running the blue grenadier stock assessment for this year and then to discuss this action item at the SERAG in October 2022 and consider it as a research priority.
- Action item 6 “Establish a subcommittee to drive the process for updating catch history data for both Tier 1 and Tier 4 species. Report to be provided at SESSFRAG Chairs’ 2022 meeting for consideration and adoption”.
AFMA proposed to remove this action item from the list, noting that this action has been incorporated into the stock assessment contract with CSIRO. And the CSIRO is working on the report and will report back to the committee.
- Action item 8 “CSIRO to include colour-coding in the discard tables in future discard reports to highlight the criteria for which discard estimates fail validity tests to enable easier consideration of these by SESSFRAG”.
SESSFRAG considered this action item as complete.

Agenda item 3: SESSF TAC setting process guidelines and timeframes

Purpose of the agenda:

For SESSFRAG to endorse changes made to the document ‘*SESSF Total Allowable Catch (TAC) setting process – Guidelines for provision of data and stock assessment processes*’ (the Guidelines).

CSIRO opened this agenda item and discussed the Guidelines.

SESSFRAG noted:

- The Guidelines provide a framework for the TAC decision-making process including CSIRO receiving data from AFMA, undertaking stock assessments, and providing recommended biological catch advice at relevant RAGs.
- The benefits of using logbook along with other sources of data (e.g., CDR, observer, and E-log) for the assessment.
- Suggestions on ways to improve the data checking process before data is entered into the AFMA data warehouse, such as using outliers to identify issues at the individual logbook level to improve the error checking process.
- AFMA agreed to include a link to the SESSF data plan to describe the process of data collection, storage, and distribution to end-users.
- The importance of including catch data from other jurisdictions to improve the CPUE analyses.

SESSFRAG advice and recommendation:

- Amend the title of the SESSF TAC setting process guidelines and timeframes to refer to the RBC setting process rather than the TAC setting process.
- Include information in the SESSF TAC setting process guidelines and timeframes about the data-flow processes within AFMA, and a link to AFMA’s data strategy and data transformation project outline.
- Reference data provided by other jurisdictions (e.g., catch and effort data) in the SESSF TAC setting process guidelines and timeframes.

ACTION item 1 - CSIRO to provide a reference to requirements in the Harvest Strategy Policy regarding choice of target reference points and other key policy settings within the TAC setting guideline document.

Agenda item 4: Non-eastern orange roughy stock assessment options

Purpose of the agenda:

For SESSFRAG to consider and discuss the findings of the project ‘Synthesis of information and assessment options for non-eastern orange roughy stock’, which includes a synthesis of available information and viable assessment options for each non-eastern orange roughy stock.

CSIRO introduced the agenda item and described the project objectives as following:

- To provide a synthesis of existing information relevant to non-eastern orange roughy stocks and evaluate feasible assessment options.
- Describe existing sources of biological and fisheries related data (e.g., catch, effort, size, abundance, length, age, etc.).
- Provide overview of stock assessments done to date.
- Using FishPath, as a diagnostic tool, explore/confront:
 - a. what assessment methods could be done now for the different stocks based on the data currently available,
 - b. what types of data would enable the most robust (Tier 1) assessment options (providing guidance for future data collection).

SESSFRAG noted:

- The stock status is defined as sustainable in the eastern zone and the Cascade plateau, depleted in non-eastern zones and undefined in GAB zone due to no stock assessment.
- Of the management zones considered, the GAB zone was the most data deficient whilst the Cascade plateau and eastern zones were the most data rich.

- The largest differences among the zones for data availability and data quality were related to age composition data and abundance estimates.
- There is no data on population growth rate and absolute stock abundance for non-eastern stocks.
- There are gaps in the time series of catch data in the GAB zone that compromise the data representativeness.
- The most viable stock assessment method for orange roughy stocks in all zones, based on current data, were as follows (however, due to the caveats in data, caution needs to be taken in using each method):
 - catch only methods,
 - population dynamic models, and
 - size and age-based methods.
- Additional data needed for robust Tier 1 stock assessment for non-eastern orange roughy due to absent, uncertain or borrowed life-history characterises.

Recommendations for the stock assessment options are:

- running multiple independent assessment options for the non-eastern stock,
- higher Tier assessment methods, including age-based methods and potentially population dynamics models for the Cascade roughy,
- running sensitivity analyses for all future stock assessment to address uncertainties,
- updating demographic parameters such as growth rates, mortality, von Bertalanffy growth and recruitment.

Recommendations for future data collection are:

- acquiring age estimates from the collection of archived otoliths (most applicable for the GAB, western and southern zones),
- ensuring future data collection occurs in the same spatial area or sub-zone to reduce spatial biases,
- acquiring more estimates of abundance and a greater understanding of distribution through trawl surveys or acoustic surveys,
- improving the age time-series to better understand population trajectory. For this to be effective, at least 500 otoliths should be aged for any year and location (sub-management zone),
- acquiring an additional two years of ageing data by ageing more recent samples and then earlier years in the same location for the GAB stock,
- acquiring age data from archived otoliths available for 2020 for the western stock,
- collecting a larger number of otoliths in future sampling efforts for the southern stocks,
- running acoustic surveys (at least for two years) to get a better estimate of abundance (cost effective analysis is required here),
- considering factors driving high variability in catchability such as climate variability influence on spawning and species distribution.

SESSFRAG advice and recommendation:

- CSIRO to reword the summary of stock assessment and data needs in the non-eastern orange roughy FishPath report to capture the point that closures have prevented fishing and therefore limited representative data collection.
- Continue with a weight of evidence approach for the various non-eastern orange roughy stocks assessment through the relevant RAGs and report back for SESSFRAG chair's meeting in 2023.
- AFMA to clarify with the relevant RAGs what the focus of a quantitative assessment or weight-of-evidence approach for non-eastern orange roughy stock are trying to achieve (e.g., evidence of stock recovery or stock status).

Agenda item 5: Step-up TACs during MYTAC periods

Purpose of the agenda:

To seek SESSFRAG advice on minimising the risks associated with 'step-up' Total Allowable Catches (TACs) for species managed under Multi-year TACs (MYTACs).

CSIRO opened the agenda item and discussed the Guidelines updates,

SESSFRAG noted:

- This agenda item should focus on step-up 'RBC' because for the Tier1 species, the average TAC is set based on the RBC that can increase over subsequent years based on the harvest control rule.
- Increasing RBCs are based on assumptions made about recruitment and mortality rates and may result in optimistic predictions about the trajectory of the stock.
- In recent time, RAGs have explored low recruitment scenarios and alternative catch scenarios to account for risks associated with increasing RBCs.
- Precaution can be built into the TAC setting process due to these underlying issues (e.g., setting buffers/discount factors).

SESSFRAG advice and recommendation:

- The risk associated with uncertainty in TAC setting process should appropriately be dealt with under the species buffer project being led by CSIRO which is well underway. In the meantime, the MYTAC review provides an opportunity for RAGS to review indicator data between assessments to ensure the underlying assumptions supporting increasing RBCs remain valid.

Agenda item 6: Application of CKMR for key SESSF species

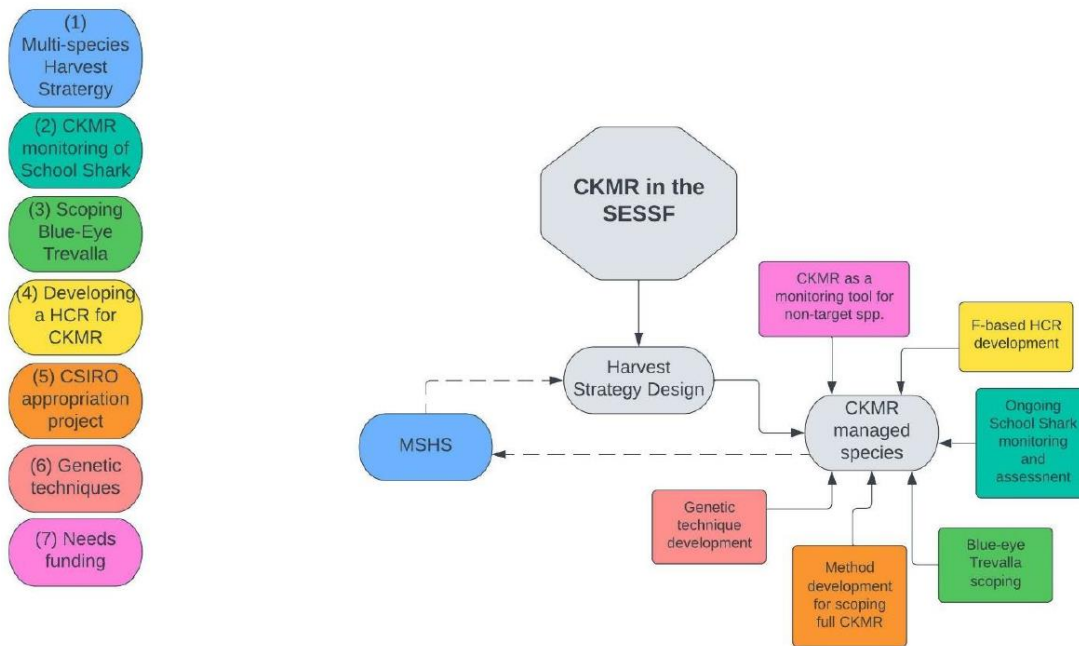
Purpose of the agenda:

- Providing an overview of how the Close-Kin Mark Recapture (CKMR) technique may be used to estimate the abundance of key species in the SESSF and the steps necessary to progress a study of this nature.

CSIRO introduced the agenda item and discussed CKMR projects in the SESSF.

SESSFRAG noted:

- CSIRO propose there could be three CKMR assessment categories for the SESSF:
 1. non-CKMR species: species not suitable for management using CKMR; or species where the current CPUE will not be impacted by proposed management changes (e.g., school whiting and orange roughy).
 2. full CKMR species: High value, target species; or species whose assessments will be impacted by the proposed management changes, assessment types for the full CKMR species could be,
 - Tier 1 like assessment with CKMR data incorporated alongside other fishery dependent data,
 - Tier 3 like assessment with just CKMR data.
 3. CKMR monitoring species: species for which CKMR can be used to monitor minimum stock size without precise estimates of abundance.
- A prioritisation of species for each CKMR assessment category is required, including a cost analysis to determine affordable assessment methods (e.g., flathead is a key priority for full CKMR assessment).
- CSIRO will submit a proposal to the AFMA Research Committee (ARC) to undertake a project to scope CKMR for key SESSF species. This will include likely confidence intervals and the sample sizes and how they impact the costs and scope of the CKMR assessment.
- CSIRO provided an overview of existing CKMR projects and how these are considered within the broader CKMR framework and SESSF structure as follows:



Priorities for future work are:

1. developing a list of SESSF species where assessment is needed (noting work done through the Multi-Species Harvest Strategy (MSHS) project) and make an initial allocation to the three categories: non-CKMR species, full CKMR species and CKMR monitoring species.
 2. developing methods for using CKMR as a monitoring tool; including associated computer code and decision rules.
 3. scoping studies, including expected costs, for both full CKMR and CKMR monitoring species to determine required sample sizes, sampling strategies and associated costs.
- The categorisation and prioritisation of SESSF species for CKMR assessment will be considered as part of a new research proposal (to be funded in 2023-24) and could be informed by outputs of the 'indicator species' candidate harvest strategy approach under the MSHS project.

ACTION item 2 – CSIRO to present the outputs of the indicator species candidate harvest strategy (part of the MSHS project) at the 2023 SESSF Chair's meeting to inform advice around key species for CKMR scoping.

- For the species that CPUE is no longer indexing the abundance, there are benefits to assess them using CKMR. Not all species will be suitable for CKMR and there is still a need for traditional stock assessment approaches.
- Scoping studies will assist in understanding the sampling requirements and expected costs for the assessments. The costs should reduce over time.
- Industry raised concerns about the cost of maintaining traditional stock assessments for SESSF species while developing CKMR methods.
- CKMR assessments are fairly robust to underlying stock structure assumptions (e.g., genetic homogeneity in species like Flathead) provided sampling is representative across the population range.
- The upcoming RV Investigator cruise may provide an opportunity to collect samples for CKMR study,
- The cost and timing of the scoping study will be detailed in the proposal, due with the AFMA research committee in November 2022.
- CKMR does not provide a measure of abundance relative to the virgin stock biomass, which is currently required for the purpose of monitoring rebuilding timeframes for depleted species. This should be considered as part of the review of the HSP.

ACTION item 3 – AFMA to provide the list of rebuilding species for SESSF Chair's meeting to support prioritization of species for CKMR.

ACTION item 4 – SERAG to consider the outcomes of the jackass morwong CKMR scoping project and provide advice on future priorities for CKMR research.

ACTION item 5 – SESSFRAG to provide advice on candidate species for a CKMR scoping project at the April Chair’s meeting in 2023. This should take account of the outputs of the indicator species candidate harvest strategy.

SESSFRAG advice and recommendation:

Tiger flathead and eastern redfish should be prioritised for CKMR scoping as part of existing CSIRO projects.

In doing so, the RAG noted:

- Scoping for jackass morwong has been completed and will be considered by SERAG later in 2022.
- Some species, including school whiting and orange roughy, are not suitable for CKMR due to life-history characteristics.
- SESSFRAG will provide advice on scoping prioritise for other species at its 2023 Chair’s meeting.
- Considering a range of criteria for the scoping project such as deciding whether the priority should be given to the rebuilding species or the conservation dependent species or those that are important for the fishery. This will need to be discussed at the SESSFRAG Chair’s meeting 2023.

Agenda item 7: Ecosystem Traits Index presentation

Purpose of the agenda:

To inform SESSFRAG members of the Ecological Trait Index (ETI), developed by Dr Beth Fulton (and colleagues), and discuss its potential application to the management of the Southern and Eastern Scalefish and Shark Fishery (SESSF).

SESSFRAG noted:

- The aim of this project is to bring researchers, managers, and policy makers together to find indicator species that would fit into various management systems around the world. The project covers the US (Alaska), Chile, southeast Australia (SESSF), India, Thailand, Vietnam, and Norway.
- This work follows three steps:
 1. identifying the species or functional groups in the system that have a critical role to its ongoing function. The species most critical to the food web structure are Hub species.
 2. assessing the role of fishery in ecosystem change and trophic pattern and predation. If fishing happens in line with natural predation pattern in the ecosystem, then the ecosystem and the Hub species won’t be under distorting pressure.
 3. assessing Hub species in the SESSF (e.g., mesopelagic, large sharks, squids, large zooplankton, and Gemfish in the past).

Key findings from the project are:

- Climate change impacts (such as heatwaves) can push the ecosystem towards less resilience and possibly collapse in longer term.
- The fishing pressure influence on ecosystem resilience has not yet been modelled and this is due to the lack of long term and historical surveys in Australia.
- There are stocks that fall within three bands that provide a measure of whether a system is being overfished:
 - structurally overfished (red band),
 - structurally on target (green band),
 - structurally underfished (yellow band).

- While most stocks fall within the underfished bands, there are a number of stocks that fall within the structurally overfished band due to significant fishing pressure.
- Over the last decade, fisheries managers have aimed to have stocks in the green band, however, in a multi-species fishery which included long-lived vulnerable species, this is not achievable with a single-species approach.
- The SESSF Ecosystem Trait Index (ETI) is showing that it has gone from high integrity during 80's to medium and low integrity in more recent years. This is due to the climate induced impacts on the ecosystem. The management framework needs to consider the ecosystem and environmental influences to avoid an ecosystem collapse.
- Ecosystem collapse is possible between the period 2030-40 particularly if successive marine heatwaves occur.
- Reporting ecological indicators alongside stock assessments (such as in the [Alaskan fisheries](#)) gives additional context for the TAC setting process.
- The possibility of having a “balanced Harvest Strategy Policy (HSP)” (where all species groups are harvested in an ecosystem in direct proportion to their productivity) that is resilient to changes was discussed by Dr Ian Knuckey. Dr Fulton noted that having a balanced harvest is difficult in Australia due to people’s narrow preference for fish species. Although a balanced fishing pressure can be imposed on the ecosystem to stop that from collapsing, but it is unlikely to achieve a balanced and ideal HSP.
- There are some issues around the assumptions behind the SESSF stock assessments such as virgin biomass (B_0), non-stationarity of natural mortality, trophic interaction, unknown life history parameters, climate change impact on the ecosystem and many other assumptions. These uncertainties/issues should be addressed and incorporated into the decision makings.
- The first step towards incorporating the ecosystem and climate impacts into the HSP is to define some indicator that different class of species effectively being tracked under them. The next step is to report the green band status of the species. This approach is like a performance measure of the fishing practice.

SESSFRAG advice and recommendation:

- Explicit consideration of ETI in the HSP is being considered as part of the MSHS project. In the meantime, SESSFRAG supported AFMA incorporating environment data and species sensitivity to climate change in the decision-making process by:
 1. including an agenda item at assessment RAG meetings to consider environmental data and trends to provide context when considering stock assessments outputs, and
 2. including a section for each species in the SESSF species summary document with information about sensitivity to climate change and expected trends (only those species that have RBC).

ACTION item 6 – AFMA to include an agenda item at assessment RAG meetings to consider environmental data and ecosystem indicators and trends to provide context when considering stock assessments outputs.

ACTION item 7 – AFMA to include a section for each species in the SESSF species summary document with information about sensitivity to climate change and expected trends.

Agenda item 8: Data collection programs

Purpose of the agenda:

For SESSFRAG to 1) note the key points in the updates provided by AFMA, Atlantis Fisheries Consulting Group (Atlantis) and Fish Ageing Services (FAS) on various data collection/analysis programs; 2) make decisions on the incorporation of new age data into stock assessments for several species and 3) provide advice on proposed or potential changes to the otolith ageing schedule, the Integrated Scientific Monitoring (ISMP) plan and the SESSF data plan.

AFMA introduced the agenda item and gave update about the ISMP annual report 2021.

SESSFRAG noted:

- Due to COVID-19 restrictions, there were low to zero observer coverage in the first two quarters and in particular, for zone 10 (New South Wales offshore and royal red prawn).
- Targets for length data weren't met in the western zones due to low catches for western jackass morwong and western mirror dory.
- Samples taken from zone 20 and zone 60 were low and non-representative due to limited sea time by Danish seiners, despite being key parts of the fishery.
- A potential option could be to collect samples from the fish bins at port to fill the gap for the non-representative zones (NSW DPI offered their assistance for collecting these samples).
- The Fish Ageing Services (Dr Kyne Krusic-Golub) asked for the samples to be sent in a timely manner to them.

SESSFRAG advice and recommendation:

- AFMA should consider a trial of an industry data collection program to supplement the existing ISMP program. This could be run in conjunction with the EM monitoring program trials.
- There are opportunities for collaboration with the NSW DPI to explore ways of obtaining port-based biological samples from the non-representative zones in the ISMP.

ACTION item 8 – AFMA to trial an industry data collection program to supplement the ISMP program, with a focus on the western part of the fishery.

ACTION item 9 – AFMA to consider engaging NSW DPI to collect biological samples at the Sydney Fish Market to supplement the ISMP program.

SIDaC report

Industry member (Mr Simon Boag) gave an update about the end of the three-year Shark Industry Data Collection (SIDaC) contract and the first quarter of a new contract.

SESSFRAG noted:

- The report contains the numbers of biological samples taken from each relevant zone (target vs actual number of samples collected) for gummy shark, school shark, pink ling, blue-eye trevalla and ribaldo.
- Targets were not met for school shark due to low catches and the limitations on retention due to the live release rule.
- Targets were not met for pink ling due to low effort.
- CSIRO (Mr Paul Burch) mentioned the linking of the SIDaC data to logbook data needs to be resolved before stock assessments for shark species are conducted.
- Length frequency samples are not required for a tier 4 assessment for ribaldo and SIDaC targets should be confirmed.

SESSFRAG advice and recommendation:

- The ISMP program and industry programs should work together to fill sampling gaps where required.
- Matching the sampling with the level of fishing effort and catch in different zones should improve representativeness of samples in the SIDaC program.
- Sampling targets for gummy shark and school shark could be adjusted to better reflect the fishing effort; this can be done through SharkRAG and then the data plan can be updated accordingly.

ACTION item 10 – AFMA to seek advice from SharkRAG on adjusting biological sampling targets for gummy shark and school shark to better reflect recent fishing effort.

ACTION item 11 – AFMA to confirm length frequency targets for ribaldo in the SESSF data plan.

Fish Ageing Service (FAS) annual report

Dr Kyne Krusic-Golub updated the RAG about the newly aged data and asked the RAG to provide advice on the proposed ageing plan for 2022 and 2023 assessment year.

- The duration of project is for three years - 2022 is now in its second year.
- About 17,667 otolith and vertebrae samples were registered (from SET, GABFIS and industry collected samples namely GAB orange roughy) for 22 different species. Also 9,791 otolith and vertebrae were aged for five Tier1 species. The 2021 samples haven't been fully archived yet.
- Additional work has been done to complete the migration of age error and precision data into a customised data format (10 species are done and 5 species are left). More than 40,000 samples from the FIS and industry are now held at FAS.
- Ageing was completed for blue grenadier, eastern gemfish, Bight redfish, tiger flathead and school whiting in 2021/22, deviating from the proposed plan due to modifications of the stock assessment schedule, sample availability and budgets.
- The age composition data for the non-spawning blue grenadier in 2021 has shown a considerable number of small fish (1 year old) in the samples, compared to 2020. This is not clear whether it was due to a sampling bias or something else.
- CSIRO (Dr Paul Burch) suggested removing the age data for the GAB grenadier because this is not used in the assessments.

ACTION item 12– AFMA to remove blue grenadier caught in the GABT from SESSF sampling plan.

- The number of samples for the age composition data for Bight redfish in 2021/22 was very low, compared to 2020/21 data.

ACTION item 13– FAS to check Bight redfish 2021/22 otolith sample numbers are correct, noting they are low compared to 2022/23.

- This year about 4,500 samples were taken and new information on flathead will be coming to the assessments (most of the samples were for zone 20).
- Length frequency and age data for school whiting has shown that the samples in 2021 were a bit younger than the 2020 samples. This might have been due to fewer trawl samples versus Danish seine.
- AFMA (Mr Dan Corrie) noted that there are usually some discrepancies between the length measurements at port and on-board. At the port the sample sizes are larger and for 2021, maybe most samples were taken on-board and this is why more smaller fish was seen for this year. So, it's important to know where the samples are coming from.

ACTION item 14– FAS and AFMA to check whether school whiting length and age data were collected in port or on-board to understand the discrepancy in ages between 2020 and 2021.

- The proposed ageing work plan for 2022/23 was presented, noting ageing requirements for jackass morwong, orange roughy, pink ling, gummy shark and deepwater flathead.
- The workplan also includes annual preparation for shark vertebrae ahead of assessments.
- An issue was picked up with the length measurements for GAB orange roughy in 1992 (small lengths of the GAB orange roughy samples (N=96) collected during 1992). And FAS will check the issue to see whether there were Total Length (TL) or Standard Length (SL) measurements.

ACTION item 15– FAS to check length frequency records for GAB orange roughy collected in 1992 (which were later identified as being from 1993) and clarify whether they are Total Length (TL) or Standard Length (SL).

- The current ageing plan is \$40,000 over budget, so those species that are not going to be assessed in 2023 can be removed from the plan.

- AFMA raised a question about the tissue sample collection for the CKMR species (e.g., how and who get the samples and where they get stored). FAS suggested this to be done as part of the RV investigator project.

Action item 16– AFMA to add the redfish tissue samples to the SESSF data plan to support future CKMR.

Action item 17– AFMA to prioritise linking the SIDaC data to logbooks in the AFMA database as it is required for the 2023 gummy shark stock assessment.

SESSFrag advice and recommendation:

- Collect tissue samples when sampling otoliths for redfish to support CKMR study.
- Remove the blue grenadier biological sampling targets for the GAB in the SESSF Data Plan.

Agenda item 9: Catch & Discard Data

Purpose of the agenda item:

To update SESSFrag on changes to SESSF catch and discard data and seek advice on the treatment of several data issues.

CSIRO introduced the agenda item and discussed changes in SESSF data in 2022.

SESSFrag noted:

- The issues and changes in the catch report:
 1. Hagfish data is added to the catch report in 2022 (however, it doesn't have any length and age data).
 2. Blue warehou was misreported as black trevally in logbooks which caused issues in discard calculations and CPUE analysis (mainly during 2018 to 2019). This is now fixed in logbooks.
 3. GAB industry crew-collected data had been revised and any errors have been excluded or corrected.
 4. PirVIC pre-1998 data – unclear how much of this data in the standard-length table and CSIRO is investigating this matter.
 5. 2021 port length data only included Lakes Entrance (CSIRO has now received all 2021 Port length data and will incorporate this into 2022 Tier 1 assessments).
 6. SIDaC data not yet linked to logbooks in the AFMA Database.
- CSIRO is meeting AFMA later in 2022 to discuss some of the aforementioned issues.
- CSIRO (Dr Robin Thomson) asked to link the gummy shark and school shark data in SIDaC to logbook for next year's assessments.
- The blue-eye trevally catch report is split into a seamount stock, a shelf stock, and a slope stock. zone 10 and 90 are considered as seamount and the remainder considered as slope. The Cascade plateau and South Tasman Rise were assigned to the slope.
- High seas catches are not included in this year's catch report.

Changes that impacted CPUE analysis were:

1. Invariant depth reporting by vessels is now corrected by using locations and bathymetry data. This is included in the CPUE standardisations.

2. Seismic survey shots in logbooks that occurred in the location and period of the 2021 survey have been excluded from the CPUE standardisation analysis for flathead and school whiting (this was in response to previous SESSFRAG meeting request to remove all the logbook shots that were involved in seismic surveys). Dr Miriana Sporcic excluded the non-survey vessels that operated within the same time and location of the survey vessels and those in vicinity of the survey area from the CPUE analysis.
 3. DayNight (DN) calculations included additional gear codes for species caught by auto-line. In previous years, the DN for auto line boats utilises codes that had AL only in the DayNight calculations, so there were issues for when there was no end time for operations. Therefore, it wasn't clear whether the operation occurred during the day or night. Now the term ALL and LLA is used in 2021 logbook operations. Dr Sporcic noted CPUE analysis was impacted by this change.
- Dr Sporcic has done two analysis of CPUE with and without non-survey vessel's shot incorporated into the analysis. And there was no depreciable difference.

Action item 18– Dr Miriana Sporcic to provide Mr Simon Boag with a summary of the modifications to the flathead and school whiting CPUE standardisations to account for the impact of seismic surveys in Bass Strait in 2020.

- Dr Sporcic requested RAG advice to include all the three auto-longline codes into the calculations of the DN term for future CPUE analysis.
- When operation end time is not recorded, the average operation time of auto-line codes (AL, ALL, LLA) combined is used to infer the shot end time.

SESSFRAG advice and recommendation:

- SESSFRAG endorsed the proposed zoning for the blue-eye trevalla CPUE analysis.
- Dr Sporcic to exclude any shots by all boats that operated in the seismic survey area from 1 Jan to 30 June 2020 from the CPUE standardisation for flathead and school whiting – not just those boats that were part of the BACI study.
- Combine all automatic-longline gear codes and apply the appropriate DayNight (DN) adjustment for species CPUE standardisations.

Discard validation

CSIRO discussed the issues with reporting discards, and the developed rules for preparing a list of discard outliers.

SESSFRAG noted:

The discards outlier,

1. Any discards of over 500 kg or exceeding two standard deviations for that species are considered as outliers.
2. After further investigation by AFMA, it was shown that 12% of the records were incorrectly recorded as discards due to different reasons (e.g., being a small product or damaged).
3. 1,160 records with the process code of 'MEA' (mealed) were incorrectly marked as 'Discards' (such as for silver warehou). Upon further investigation by AFMA the coding is now changed to 'Retained'.

Discards outlier check modified rules proposed by CSIRO to overcome exhaustive lists of outliers,

1. Catches of species that have been processed (e.g., headed, and gutted) have been considered as retained, even if the Fate code is discarded.
 2. Catches of species with the trashed process code (TSH) have been considered as discarded, even if the Fate code is retained.
 3. The threshold for identifying outliers is:
 - discarded catches in a shot are higher than two standard deviations (compared with the most recent four years of data), or
 - discard catches in a shot are > 500 kg
- CSIRO suggested using one gear code instead of multiple codes that refer to one gear type and averaging the operation time where needed (similar to the approach taken by Dr Sporcic for the CPUE standardisation).
 - CSIRO requested the SESSFRAG to consider the proposed modification to the existing outlier detection rules to improve the efficiency of the process.
 - There are likely issues with misreporting species. In this case, manual check-ups can better assist in adjusting outliers.
 - AFMA mentioned that the discards data are observed data and the chance of misreporting species are very rare.
 - The number of discards for frostfish was high. It was suggested to liaise with the factory vessels to understand the issue. Considering the fact that the factory vessels are under 100% observer coverage.
 - Strata have not been identified for spawning areas. This creates an issue when relatively high discard rates for species such as oreo in the spawning fishery are extrapolated across the fishery, producing unrealistically high estimates of discards.
 - CSIRO proposed re-calculating discard estimates to include spawning strata which will resolve the issue.
 - CSIRO noted that the Tier 4 assessment for mixed oreos would be impacted by the significant increase in discards in 2021.
 - The deepwater shark assessment will be impacted by the new changes and therefore, CSIRO suggested running an assessment for the deepwater shark with and without re-estimating discards to compare the differences.
 - The way to resolve the issue with the RBC and the TAC setting process in regard to the revised estimates of discards will be that CSIRO provide a summary of the changes for the RAG to use for future advice on TAC settings for the coming seasons.

SESSFRAG advice and recommendation:

- Approved Rule 1 and Rule 2 that CSIRO proposed for improving the efficacy of detecting outlier in discards data. Rule 3 is species-specific and needs to be revisited by SESSFRAG at a later date.
- Recalculate discard estimates with the revised rule for this year.
- Update the discard estimates to account for spawning strata. Revised estimates of discards will be taken to relevant RAGS in 2022/23, and advice sought on a case-by-case basis for TAC setting purposes.

Discards estimate

Dr Roy Deng from CSIRO discussed the discards estimates.

SESSFRAG noted:

- A validity criterion was used for 2021 discarded and total catch estimates. The data for alfonsino, smooth oreo, gemfish and jackass morwong in the west did not meet the validity criteria according to the colour coded table.

- The trawl discards for gummy shark in 2020 was much lower than other years and SESSFRAG asked CSIRO and AFMA to check why this happened.

Action item 19– CSIRO and AFMA to investigate the low estimates of trawl gummy shark discards in 2020.

Action item 20– CSIRO/SharkRAG 2023 to review GHAT logbook data to see if there are any boat-level trends in reporting behaviour that would undermine the outcomes of the ABARES congruence analysis.

Action item 21– ABARES to consider weight as well as piece counts next time the logbook/EM congruence work is updated.

- There are discrepancies between logbooks and CDRs for a number of species that need to be resolved.

Action item 22– AFMA to investigate discrepancies in logbook and CDR data for Bight redfish, deepwater sharks, school shark and eastern school whiting in recent years and report back to the relevant RAGs in 2022.

SESSFRAG advice and recommendation:

- CSIRO/SharkRAG 2023 to review GHAT logbook data to see if there are any boat-level trends in reporting behaviour that would undermine the outcomes of the ABARES congruence analysis.

Catch report

Dr Francis Althaus from CSIRO presented the list of changes (as below) to the SESSFRAG and requested approval from the RAG.

SESSFRAG noted:

- Catches of western pink ling in the GAB (zone 80) are now included in the catch report (zone 80 catches were included in the 2021 western pink ling stock assessment).
- CDR data for 2021 was summarised by sub-fishery based on Vessel ID and Fishery from 2015-2020 (The CDR table in the AFMA database that CSIRO uses no-longer updates the sub-fishery).
- Orange roughy research catches are included in CDRs (eastern zone research catch of 105t in 2019 has been added to the 2019 CDR data (not included in 2021 eastern roughy stock assessment)).
- State catches for blue-eye trevalla were omitted from the slope stock in the 16 August 2022 version of the catch report (CSIRO will revise the catch report after the SESSFRAG meeting).
- NSW school whiting catches changed slightly (estimates based on split of stout/school whiting, confirmed by Karina Hall).
- SA catches of Bight redfish have been included by financial year rather than calendar year.
- WA catches in 2022, showed large changes for some species.

SESSFRAG advice and recommendation:

- SESSFRAG endorsed the changes made on the catch report.

Agenda item 10: MYTAC Analysis

Purpose of the agenda item:

For SESSFRAG to note the outcomes of the review undertaken by the MYTAC Working Group (the working group) and consider the recommendations for species identified for additional review.

Dr Tim Ryan from CSIRO discussed the acoustic survey study outcomes for blue grenadier (winter spawning fishery) and the Cascade Plateau orange roughy.

Blue grenadier – winter spawning fishery

SESSFRAG noted:

- There was a large discrepancy between the various biomass estimates from the historical data. However, introducing cameras on boats advanced the data quality for this survey in terms of identifying the species correctly.
- The current survey was based on the biomass surveys of blue grenadier using opportunistic transect surveys in three years running (2019-2021).
- Under the current survey, some season-long monitoring metrics (e.g., temporal, and spatial fishing patterns, school size, abundance, and localities) were developed as time indicators of stock trends. However, because vessels only do formal surveys for a small subset of the time, further information is required for season long understanding of the dynamics of the fishery.
- There was a high variability in biomass estimates and spatial distribution within and between seasons.

The survey outcomes showed:

1. the fishing effort was concentrated on hyper-stable aggregation locations to meet the factory needs and may not reflect population trends.
 2. biomass estimates may or may not concur with model expectations. However, sustained observation of the fishery throughout the seasons provides independent source of information for management.
- Mr Sandy Morison expressed concern about the value of the surveys for the stock assessments given their high spatial and temporal variability. This was acknowledged by CSIRO and they have suggested:
 1. Using the 2020 and 2021 surveys into the models (as they were more representative than the 2019).
 2. Using all three years surveys as a sensitivity analysis.
 3. Running the sensitivity analysis with and without the survey outcomes.
 - Comparison between the models and the survey outcomes have shown that the surveys can help the model to specify what the stock spawning biomass is.

SESSFRAG advice and recommendation:

- Only include the 2020 and 2021 acoustic biomass estimates of the winter spawning blue grenadier in the 2022 stock assessment and do not use 2019 data as the base case.
- Dr Tuck to run three sensitivity analyses:
 1. including the 2019 acoustic biomass estimates,
 2. using the highest estimate from the 2020 survey as a ‘best case scenario’, and
 3. not including any of the new acoustic survey data.

Cascade plateau orange roughy acoustic survey plan– Jun/Jul 2022

SESSFRAG noted:

- Dr Ryan provided a historic context of the survey (1998 to present), the vessels that participated in the survey, CSIRO plan for the survey, skippers survey, location, and timing of 2021 and 2022 cascade fishing campaigns, the coverage of the survey and observed aggregations.
- The 2021 survey was completed and there was some high confidence in aggregation sites for the roughy. However, they were not suitable for biomass estimations.
- Acoustic recordings from one of the vessels in 2022 didn't work. However, some opportunistic surveys done by other vessels haven't shown large aggregations. Therefore, he suggested a three-year plan to get some more precise biomass estimates for the Cascade plateau.
- The following survey plan was proposed:
 1. 2022 – vessel-based survey of Cascade (in consultation with AFMA as a variation/extension to 2021 project),
 2. 2023 – combined vessel and AOS survey of Cascade ahead of scheduled AOS survey of Eastern zone (future proposal):
 - a) AOS based biomass estimate (should orange roughy be acoustically available),
 - b) species identification using AOS transects,
 - c) collect acoustic-optical data to provide biomass estimates of Cascade orange roughy.

SESSFRAG advice and recommendation:

- The Cascade AOS was listed as a high priority research subjects to outcomes of 2021/22 survey. According to the outcomes of the survey, it won't be funded next year. In the absence of information for this Cascade roughy, the proposed survey options could be considered in the interim period. And it will be taken to SERAG when discussing research priorities.

Action item 23– SERAG 2022 to consider the outcomes of the 2022 Cascade plateau acoustic survey and provide advice on future research priorities.

- Change in the spawning behaviour of the Cascade orange roughy is noted as unusual, therefore a bio-chronological study is required to understand whether this is coming from one fish stock or several different stocks.

Action item 24– AFMA and FAS to provide SERAG an overview of the fish-length/otolith-weight ratio for Cascade orange roughy with a view to determining if there are different stocks aggregating on the Cascade plateau each year.

MYTAC analysis and data summary

Mr Dan Corrie from AFMA gave a presentation about the MYTAC analysis and data summary.

SESSFRAG noted:

- A MYTAC working group meeting concurred in mid-August. It was concluded that some of the species require SESSFRAG advice as follows:

Blue eye trevalla

- The Blue-eye trevalla (BET) was assessed last year, but only a single year TAC is set for this species. This year the slope stock is assessed using a Tier 4 assessment.
- Dr Miriana Sporoc discussed the proposed changes for CPUE analysis of the BET slope and requested the SESSFRAG advice on:
 - a) split to seamount and slope stocks (which was agreed by this SESSFRAG at this meeting),
 - b) the NSW catch data from 2021 was used as an alternative series of catch in the CPUE analysis,

- c) inclusion of ALL and LLA codes in addition to the existing AL code to estimate time for records with missing end times (agreed by SESSFRAG).

Bight redfish

- Bight redfish assessment includes state catch from South Australia.
- South coast of western Australian catch was reported but not included in the assessment, so the SESSFRAG advice is required as to whether to include this catch into the base case or as a sensitivity to the base case model.
- CSIRO will provide an assessment report for the Bight redfish.
- Dr Knuckey discussed the matter of homogeneity between the Bight redfish stocks in the GAB and in WA. He found a study from Murdoch University in 2013 that found a lack of gene flow between the GAB and WA stocks.
- AFMA and CSIRO suggested to present both base case and sensitivity analysis of Bight redfish for GABRAG and request their advice on whether the south coast of WA stock is to be considered as a separate stock into the base case model.
- There is a requirement on assessing the WA Bight redfish structure and present the outcomes for GABRAG for more informed decision making.

Oreo basket

- There was an issue with the big increase in estimated discards for this year which was discovered earlier (Agenda item 9. Catch and Discards data) and this was because the discards from the orange roughly spawning strata were being extrapolated across the broader fishery. CSIRO is working on this issue and so this was considered as addressed.
- If the discards numbers in the CSIRO new assessment were high, it needs to go to SERAG and the assessment should not be revisited. However, advice will be required for setting the RBC and TAC when the new discards estimate come through. This is a matter of offline discussion between AFMA and CSIRO.

Royal red prawn

- The standardised CPUE analysis have shown a 2.1t catch which is not valid and is not considered in the next Tier4 assessment. The data is not valid because the species wasn't targeted in 2021 and the number is not representative of the stock for that year.
- Dr Geoff Tuck from CSIRO discussed the issue about the non-representative catch data in the analysis and that this is an issue for investigation. Because catch is no longer indexing the abundance for most species and there is a requirement for using CKMR for them. However, RAG advice was to assess the species as a case-by-case approach and take relevant action when required.

School whiting

- In April 2022, it was decided to postpone the school whiting assessment from 2023 to 2024, However, after reviewing the Danish seine CPUE series it was found that the catch rate was declining for this species since 2015 but there has been a slight increase in 2021.
- After consultation with the NSW fishery, it was found that the reduction in CPUE was a result of reduction in effort, rather than the stock dynamics. So, the RAG advice is required as to whether to maintain on the decision of postponing the assessment or to continue the assessment.

SESSFRAG advice and recommendation:

- Due to the issues with the historical catch data (which is under investigations by CSIRO and NSW fishery), it is suggested to rely on the existing catch history series for this year's stock assessments until the issues get resolved.

- The proposed changes on CPUE analysis for the slope BET was agreed by the SESSFRAG.
- Western Australia Bight redfish catch should not be included in the 2022 Tier 1 base case. However, subject to CSIRO/Dr Knuckey providing information on stock structure, GABRAG may choose to consider it as a sensitivity analysis.
- The 2021 CPUE point for the royal red prawn doesn't index the abundance. The fishery hasn't targeted this species in 2021.
- SESSFRAG reaffirmed their decision to postpone the school whiting stock assessment to 2024.

Action item 25– CSIRO/Dr Knuckey to provide AFMA with information regarding Bight redfish stock structure with a view for GABRAG to consider it as a sensitivity analysis in the 2022 Tier 1 stock assessment.

Agenda item 11: SESSF Data and ISMP plans: recommended changes

Purpose of the agenda item:

For SESSFRAG to recommend any changes to the SESSF Data Plan 2021-23 or the 2023 ISMP Plan.

Mr Dan Corrie from AFMA opened the agenda item and discussed the proposed changes to the data plan.

SESSFRAG noted:

- There are two changes in the data plan:
 1. To remove the biological sampling target for the ISMP program for blue grenadier in the GAB because they are not used in the assessment. There is also work underway by GABIA with a focus on crew-collected data in the GAB so those data will be used where needed.
 2. Collecting tissue samples for redfish CKMR studies. This means when the otolith samples are taken, tissue samples will be taken along with them.
 3. For the smooth oreo, the length target will be kept, but the otolith targets will be removed.

SESSFRAG advice and recommendation:

Endorsed the changes made on the SESSF and ISMP data plans and recommended:

- AFMA to remove biological sampling targets for blue grenadier in the GABT from the SESSF Data Plan.
- AFMA to add the collection of redfish tissue samples to the SESSF data plan.
- AFMA to remove smooth oreo otolith targets.

Agenda item 12: 2023 Chairs meeting dates

AFMA will send out a Doodle Poll to decide.

Agenda item 13: Other business

- To note that new productivity data will become available for some species in the GAB that affect ERA at some stage.
- The nature article issue is very well communicated between the two agencies (AFMA and CSIRO). And RAGs need to be aware that the AFMA data disclosure policy in the Fisheries Management Plan (FMP) is being reviewed and will be sent to RAGs for feedbacks.
- Exploring ways to return to web-based system (cloud system or GOVTEAMS) for circulating papers. However, AFMA explained that there were issues with people remembering passwords and therefore it was suggested to use emails for communicating papers. In this case, all papers are coming through with the SESSFRAG mailbox, which reduce confusion.

Close of meeting

The Chair thanked the RAG for their contribution and closed the meeting.

Attachment A - Register of Interest

Participant	Organisation	Conflict of interest
Dr Cathy Dichmont	Cathy Dichmont Consulting	<p>Director of Cathy Dichmont Consulting.</p> <p>Chair of ComRAC (FRDC)</p> <p>Contracted by various state and Commonwealth agencies to undertake various reviews and consultancies not related to SESSF.</p> <p>No pecuniary interest in the SESSF.</p>
Mr Lance Lloyd	Lloyd Environmental	<p>GABRAG Chair</p> <p>Member of GABMAC</p> <p>Board Member, AwF – Aquaculture without Frontiers (Australia)</p> <p>Director; Lloyd Environmental Pty Ltd.</p> <p>Research Fellow; Federation University Australia</p> <p>No pecuniary interest.</p>
Dr Paul McShane	Global Marine Resource Management	<p>Chair of SERAG and a member of SEMAC and SESSFRAG.</p> <p>No pecuniary interest in the SESSF.</p> <p>Principal of Global Marine Resource Management Pty Ltd.</p> <p>Adjunct Professor (Fisheries and Aquaculture) College of Science and Engineering, James Cook University</p>
Mr Sandy Morison	Morison Aquatic Sciences	<p>Director of Morison Aquatic Sciences</p> <p>Chair of SharkRAG</p> <p>Contracted by government departments, non-government agencies and companies for a range of fishery related matters including research and for MSC assessments of AFMA managed and other Australian and international fisheries.</p> <p>No pecuniary or other interest in the SESSF.</p>
Dr Sarah Jennings	Independent economics consultant	<p>Adjunct Senior Researcher, TSBE</p> <p>Economics member of SERAG</p> <p>Economic member of SEMAC</p> <p>Member of AFMA EWG</p> <p>Independent economics consultant</p> <p>No pecuniary or other interest in the SESSF.</p>

Dr Beth Fulton	CSIRO	ecosystem and climate scientist, Portfolio Leader for Integrated Marine Management. Adjunct with the University of Tasmania (Deputy Director for the Centre of Marine Socioecology). Acquiring funding for research purposes
Mr Dan Corrie	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Dr Nastaran Mazloumi	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Mr Simon Boag	SETFIA (trawl) SSIA (sharks) SPFIA (SPF)	EO SETFIA (trawl) EO SSIA (sharks) EO SPFIA (SPF) Non-beneficiary Director of two fishing companies in the SSSF one of which is a significant quota owner. Industry member on both SERAG and SEMAC. SSIA is engaged by AFMA to collect shark industry biological data SETFIA is the PI on the Orange Roughy east AOS and ORS Cascade survey SETFIA is engaged by participants within the W ORS research fishery to collect biological samples SETFIA is engaged by AFMA under co-management to undertake a variety of tasks including snapper management, ling management and consultation
Mr Neil MacDonald	GABIA	<p>PECUNIARY INTEREST</p> <p>Director NMAC(SA) P/L</p> <p>ORGANISATION SUPPORT</p> <ul style="list-style-type: none"> • Executive officer Great Australian Bight Industry Association (GABIA) • Executive officer Charter Boat Association South Australia (CBASA) • Executive officer Southern Fishermen’s Association (SFA) • Executive officer Saint Vincent Gulf Prawn Boat Owner’s Association (SCGPBOA) • Executive officer Marine Scale Net Fishers Association (MSNFA) • Committee support services South Australian Rock Lobster Management Advisory Committee & Research Sub-Committee (SARLAC) • Support services South Australian Professional Fishers Association <p>COMMITTEE MEMBERSHIP</p> <ul style="list-style-type: none"> • Great Australian Bight Management Advisory Committee (AFMA) - Member

		<ul style="list-style-type: none"> • Great Australian Bight Research Advisory Committee (AFMA) - Member • Gulf St Vincent Prawn Fishery Management Advisory Committee (SVGPBOA) - Member • Gulf St Vincent Prawn Fishery Research Sub-Committee (SVGPBOA) - Member • Lakes & Coorong Fishery Management Advisory Committee (LCFMAC) - Member • CGG Gippsland MSS Scientific Advisory Committee – Chair • Australian Council of Prawn Fisheries - Director
Dr Paul Burch	CSIRO	<p>Employed by CSIRO, assessment scientist. CSIRO representative on the Fisheries Statistics and Information Working Group. Acquiring funding for research purposes.</p> <p>PI on data services contract.</p>
Dr Pia Bessell-Browne	CSIRO	<p>CSIRO assessment scientist.</p> <p>Acquiring funding for research purposes.</p> <p>PI on FRDC project: Developing a harvest control rule to use in situations where depletion can no longer be calculated relative to unfished levels.</p>
Dr Heidi Pethybridge	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Franzis Althaus	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Roy Deng	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Toni Cannard	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Rich Little	CSIRO	<p>Acquiring funding for research purposes.</p> <p>Member of the Total Allowable Fishing Committee for NSW, conflicts with all items with state fisheries and in particular involved with setting the TAC for school whiting.</p> <p>Principal Investigator of the SESSF Multi-species Harvest Strategy project</p> <p>Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification.</p> <p>Project leader Southeast Australian Marine Ecosystem Survey (SEA-MES)</p>
Dr Miriana Sporcic	CSIRO	<p>Assessment scientist.</p> <p>Acquiring funding for research purposes</p> <p>Project Leader CSIRO Ecological Risk Assessments</p>
Dr Robin Thomson	CSIRO	<p>Assessment scientist.</p> <p>Acquiring funding for research purposes</p>

		<p>PI on close kin project for school shark.</p> <p>PI on blue-eye trevalla close kin scoping project</p>
Dr Geoff Tuck	CSIRO	<p>Involved in Stock assessments.</p> <p>Interest in obtaining funding for future research.</p> <p>Principle investigator on the SESSF stock assessment project.</p> <p>Project leader CSIRO Marine Visual Technologies project team on automated catch detection and species identification</p>
Dr Natalie Dowling	CSIRO	<p>Has a contract with NSW DPI working to develop harvest strategies for commercial fisheries, incorporate recreational objectives into harvest strategies, and to develop a harvest strategy for Aboriginal Cultural Fishing, but that's about the only relevant stuff</p>
Dr Caroline Sutton	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Tim Ryan	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Malcolm Haddon	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Sandra Curin Osorio	CSIRO	<p>Employed by CSIRO, Assessment scientist. Acquiring funding for research purposes</p>
Dr Ian Knuckey	Fishwell Consulting	<p>Positions:</p> <p>Director – Fishwell Consulting Pty Ltd</p> <p>Director – Olrac Australia (Electronic logbooks)</p> <p>Chair – Northern Prawn Fishery Resource Assessment Group</p> <p>Chair – Tropical Rock Lobster Resource Assessment Group</p> <p>Chair – Victorian Rock Lobster and Giant Crab Assessment Group</p> <p>Chair – Victorian Central Zone Abalone Fisheries Resource Advisory Group</p> <p>Chair – Gulf of St Vincent's Prawn Fishery MAC Research Scientific Committee</p> <p>Scientific Member – Northern Prawn Management Advisory Committee</p> <p>Scientific Member – Gulf of St Vincent Prawn Fishery Management Advisory Committee</p> <p>Scientific Member – Tropical Tuna Resource Assessment Group</p> <p>Member – Victorian Marine and Coastal Council</p> <p>Member – The Agri Collective</p>

Current projects:

FRDC 2018-021 – Development and evaluation of multi-species harvest strategies in the SESSF

NSW 2021-1238 – Developing a harvest strategy framework for Aboriginal cultural fishing in NSW

DAWE Project – Multi-sector fisheries capacity building

AFMA 2020-0807 – Bass Strait Scallop Fishery Survey – 2020-22

FRDC 2019-027 – Improving and promoting fish-trawl selectivity in the SESSF and GABTS

FRDC 2018-021 – Development and evaluation of SESSF multi-species harvest strategies

Traffic Project – Shark Product Traceability

Sea Cucumber Ass. – Design and implementation of various sea cucumber dive surveys.

Australia Bay – Queensland Gulf of Carpentaria Developmental Fin Fish Trawl Fishery

Expert Witness – Gladstone Harbour development impacts

Dr Kyne Krusic-Golub	Fish Ageing Services	<p>Director – Fish Ageing Services Pty Ltd</p> <p>No pecuniary or financial interest in the fishery other than securing funds for potential projects related to age and growth studies.</p> <p>Current Related Projects</p> <p>AFMA R2019/0840 – Undertake fish ageing for the SESSF to support stock assessments, 2020 -2023.</p> <p>Project collaborator on FRDC 2019-030. An updated understanding of eastern school whiting stock structure and improved stock assessment for cross-jurisdictional management</p>
Dr Geoff Liggins	NSW DPI	<p>Employee of NSW DPI – stock assessments, research and management of NSW species.</p>
Mr Daniel Wright	ABARES	<p>Employed by ABARES. No pecuniary interest in the fishery. Any future interests in projects or research will be declared as required.</p>
Ms Krystle Keller	ABARES	<p>Employed by ABARES. No pecuniary interest in the fishery. Any future interests in projects or research will be declared as required</p>
Mr James Woodhams	ABARES	<ul style="list-style-type: none">• Employed by ABARES - Section Manager.• No pecuniary interest in the fishery.• ABARES has a minor role (and a small amount of project funds) in '2019-036: Implementation of dynamic reference points and harvest strategies to account for environmentally driven changes in productivity in Australian fisheries.

- Any future interests in projects or research will be declared as required.
- Non-financial roles on steering committees for the Multi species harvest strategy project led by CSIRO, reviewing biological parameters project led by CSIRO and Alternate indicators for the SESSF (working group reporting to SESSFAG).

Mr Aaron Puckeridge	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Dr Mark Grubert	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Dr Lara Ainley	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Mr Roshan Hamanseth	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Mr Tamre Sarhan	AFMA	Employed by AFMA, no interest, pecuniary or otherwise
Mr Henry Oak	AFMA	Employed by AFMA, no interest, pecuniary or otherwise

Attachment B- Action Items

Complete/Redundant	Underway	Yet to start	Need further advice	On hold
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No.	Ag. Itm / Mtg Date	Action Item	Agency / Person	Timeframe	Progress as of SESSFRAG Data meeting 2020
1	5	AFMA follow up on the status of the EWG and report back to the RAG out of session	AFMA	As soon as practicable	The EWG meets on an as needs basis at the request of the Commission and Chair. Despite not meeting face to face in recent times there has been issues discussed out of session with members and progress has been made on developing a new Fishery Management Paper describing how AFMA reports performance against the Net Economic Return Objective.
2	7	Beth Fulton to deliver a presentation to the SESSFRAG data meeting on the BETH index paper when it is available	Beth Fulton	August 2022 meeting	SESSFRAG advice needed
3	8	Establish a process for reviewing stock assessments using blue grenadier as a case study	AFMA	As soon as practical	SESSFRAG advice needed
4	9	CSIRO team to seek feedback from MSC, ABARES and DAFF on the two methodologies identified for measuring risk under the discount factor project.	CSIRO	Chairs' meeting 2023	CSIRO to provide update
5	10	SESSFRAG to review school whiting indicator data as part of the MYTAC agenda item in August 2022 and provide advice on whether the 2023 stock assessment can be postponed.	AFMA	August 2022 meeting	Considered as part of MYTAC
13	11 SESSFRAG Data 2020	AFMA to evaluate the benefits of undertaking another analysis of discard reporting for fisheries that have EM to determine if there are continuing improvements in reporting (as per the review that ABARES undertook).	AFMA	As soon as practicable	Underway The analysis comparing logbook and EM data congruence is complete and was presented to SharkRAG in July 2022 by ABARES. The report made a number of recommendations which were discussed by SharkRAG. The report and these discussions will be considered by AFMA.
6	7b SESSFRAG Data 2021	Establish a subcommittee to drive the process for updating catch history data for both Tier 1 and Tier 4 species. Report to be provided at SESSFRAG Chairs' 2022 meeting for consideration and adoption.	CSIRO / NSW DPI / AFMA	SESSFRAG Chairs' 2022 meeting	Incorporated into SESSF stock assessment contract and AFMA propose to remove this from the action items for the chair's meeting in 2023.

		Membership – Paul Burch (CSIRO - lead) Geoff Liggins (NSW DPI) and Dan Corrie (AFMA). A member to be included from Victorian Fisheries Authority if needed. Other agency members to be included if needed.			Geoff Tuck to provide an update.
17	12 SESSFRAG Data 2020	AFMA and CSIRO to liaise with the states regarding estimates of discards for SESSF quota species and consider establishing a discard and recreational fishing working group to consider a set of decision rules, in particular: <ul style="list-style-type: none"> a. whether to apply Commonwealth discard rates to state catches when Commonwealth and state gear types or management controls differ; b. how to estimate state discard rates and total catches where Commonwealth discard rates are not applied because of differences in gear type or management controls; and c. whether the approach used to determine recreational catch weights for shark species should be extended to other SESSF species as part of the 2021-22 Data Services Contract. 	AFMA / CSIRO	As soon as practicable	a-b: Underway AFMA will progress this work, subject to resource availability. c: Complete This was discussed at SERAG in November 2020, and it was decided not to extend the approach to other SESSF species at this stage – state catches are either low, or not provided to CSIRO. Dr Burch will continue to request recreational catch data from state agencies each year and include the figures in the Catch and Discards report.
7	9 SESSFRAG Chairs' 2021	AFMA to incorporate the process for periodic review of stock assessments in the document 'Total Allowable Catch (TAC) setting process – Guidelines for provision of data and stock assessment processes' for further consideration by SESSFRAG. Timeline is subject to other priorities.	AFMA	As soon as practicable	<u>Underway</u> A discussion was held at the SESSFRAG March Chairs 2021 meeting to establish a process for reviewing stock assessments. This item was to be further considered at the April 2022 Chair's meeting, however has been postponed due to resource constraints.
8	10 SESSFRAG Chairs' 2021	Dr Paul Burch (CSIRO) to liaise with Dr Ian Knuckey (Fishwell Consulting) and Fish Ageing Services, to determine the spatial and temporal data associated with Cascade Plateau orange roughy otolith samples.	Dr Paul Burch	August 2021 meeting	<u>Underway</u> The roughy otoliths won't be aged until September at the earliest so CSIRO will present the data to SERAG and GABRAG if the data is ready in time
16	16 SESSFRAG Chairs' 2021	AFMA to compare discard data reported in logbooks, to those recorded by the ISMP program, to determine the accuracy of operator reported discards.	AFMA	Include in future discard reviews to SESSFRAG	<u>Underway</u> AFMA is currently developing the reporting templates. This project has been put on hold due to resource constraints.
8	7c SESSFRAG	CSIRO to include colour-coding in the discard tables in future discard reports to highlight the criteria for which	CSIRO	SESSFRAG Data 2022	<u>Underway</u> SESSFRAG advice needed on the colour table for discard and

	Data 2021	discard estimates fail validity tests to enable easier consideration of these by SESSFRAG.		meeting	catch report.
4	4 SESSFRAG Chairs' 2019	AFMA to obtain and include in its database-historic blue warehou industry collected data	AFMA	As soon as practicable	Blue warehou data – <u>Not yet started</u> - AFMA to follow up.
3	8 SESSFRAG Data 2020	The RAG to discuss the implications of the MSHS project on the ageing plan and the inclusion of non-quota species, such as leatherjackets, at the Chairs' 2021 meeting.	SESSFRAG	Chairs' meeting 2021	<u>Not yet started</u> A summary of non-quota species collections held was provided as part of the FAS annual report at the 2021 SESSFRAG Data meeting. Until the MSHS project has progressed further, it is unclear which data/ages will be required to support ongoing assessments and management. Until then, the ageing plan will continue to be based on the current ISMP and Harvest Strategy Design.
15	12 SESSFRAG Data 2021	Develop a consistent approach for constructing decision tables for consideration at the SESSFRAG Chairs' 2022 meeting.	CSIRO (Paul Burch)	SESSFRAG Chairs' 2022 meeting	<u>Underway</u> – AFMA will consider this, subject to resource constraints. Until a formal process is agreed, relevant RAGs will be asked to provide advice on the use of decision table on a species basis.

Attachment C – Summary of Action Items and Recommendations arising from SESSFRAG Data meeting August 2022

Action Item	Agenda Item	Description	Responsibility	Timeframe
1	3	CSIRO to provide a reference to requirements in the Harvest Strategy Policy regarding choice of target reference points and other key policy settings within the TAC setting guideline document.	CSIRO	As soon as possible
2	6	CSIRO to present the outputs of the indicator species candidate harvest strategy (part of the MSHS project) at the 2023 SESSFRAG Chair's meeting to inform advice around key species for CKMR scoping.	CSIRO	SESSFRAG Chair's meeting 2023
3	6	AFMA to provide the list of rebuilding species for SESSFRAG before the April 2023 Chairs meeting to support prioritization of species for CKMR.	AFMA	SESSFRAG Chair's meeting 2023

4	6	SERAG to consider the outcomes of the jackass morwong CKMR scoping project and provide advice on future priorities for CKMR research.	CSIRO	SESSFRAG Chair's meeting 2023
5	6	SESSFRAG to provide advice on candidate species for a CKMR scoping project at the April Chair's meeting in 2023. This should take account of the outputs of the indicator species candidate harvest strategy.	CSIRO	SERAG 2022
6	7	AFMA to include an agenda item at assessment RAG meetings to consider environmental data and ecosystem indicators and trends to provide context when considering stock assessments outputs.	AFMA	As soon as possible
7	7	AFMA to include a section for each species in the SESSF species summary document with information about sensitivity to climate change and expected trends.	AFMA	As soon as possible
8	8	AFMA to trial an industry data collection program to supplement the ISMP program, with a focus on the western part of the fishery.	AFMA	As soon as possible
9	8	AFMA to consider engaging NSW DPI to collect biological samples at the Sydney Fish Market to supplement the ISMP program.	AFMA	As soon as possible
10	8	AFMA to seek advice from SharkRAG on adjusting biological sampling targets for gummy shark and school shark to better reflect recent fishing effort.	AFMA	SharkRAG 2022
11	8	AFMA to confirm length frequency targets for ribaldo in the SESSF data plan.	AFMA	As soon as possible
12	8	AFMA to remove blue grenadier caught in the GABT from SESSF sampling plan.	FAS	As soon as possible
13	8	FAS to check Bight redfish 2021/22 otolith sample numbers are correct, noting they are low compared to 2022/23.	FAS	As soon as possible
14	8	FAS and AFMA to check whether school whiting length and age data were collected in port or on-board to understand the discrepancy in ages between 2020 and 2021.	FAS	As soon as possible
15	8	FAS to check length frequency records for GAB orange roughy collected in 1992 (which were later identified as being from 1993) and clarify whether they are Total Length (TL) or Standard Length (SL).	FAS	As soon as possible
16	8	AFMA to add the redfish tissue samples to the SESSF data plan to support future CKMR.	AFMA	As soon as possible
17	8	AFMA to prioritise linking the SIDaC data to logbooks in the AFMA database as it is required for the 2023 gummy shark stock assessment.	AFMA	As soon as possible

18	9	Dr Miriana Sporcic to provide Mr Simon Boag with a summary of the modifications to the flathead and school whiting CPUE standardisations to account for the impact of seismic surveys in Bass Strait in 2020.	CSIRO	As soon as possible
19	9	CSIRO and AFMA to investigate the low estimates of trawl gummy shark discards in 2020.	CSIRO and AFMA	As soon as possible
20	9	CSIRO/SharkRAG 2023 to review GHAT logbook data to see if there are any boat-level trends in reporting behaviour that would undermine the outcomes of the ABARES congruence analysis.	CSIRO	SharkRAG 2023
21	9	ABARES to consider weight as well as piece counts next time the logbook/EM congruence work is updated.	ABARES	SESSFRAG Chair's meeting 2023
22	9	AFMA to investigate discrepancies in logbook and CDR data for Bight redfish, deep-water sharks, school shark and eastern school whiting in recent years and report back to the relevant RAGs in 2022	AFMA	As soon as possible
23	10	SERAG 2022 to consider the outcomes of the 2022 Cascade plateau acoustic survey and provide advice on future research priorities.	CSIRO	SERAG 2022
24	10	AFMA and FAS to provide SERAG an overview of the fish-length/otolith-weight ratio for Cascade orange roughy with a view to determining if there are different stocks aggregating on the Cascade plateau each year.	AFMA & FAS	SERAG 2022
25	10	CSIRO/Dr Knuckey to provide AFMA with information regarding Bight redfish stock structure with a view for GABRAG to consider it as a sensitivity analysis in the 2022 Tier 1 stock assessment.	CSIRO and Fishwell Consulting	GABRAG 2022
	Agenda Item	Recommendations		
1	3	Amend the title of the SESSF TAC setting process guidelines and timeframes to refer to the RBC setting process rather than the TAC setting process.		
2	3	Include information in the SESSF TAC setting process guidelines and timeframes about the data-flow processes within AFMA, and a link to AFMA's data strategy and data transformation project outline.		
2	3	Reference data provided by other jurisdictions (e.g., catch and effort data) in the SESSF TAC setting process guidelines and timeframes.		

4	4	CSIRO to reword the summary of stock assessment and data needs in the non-eastern orange roughy FishPath report to capture the point that closures have prevented fishing and therefore limited representative data collection.
5	4	Continue with a weight of evidence approach for the various non-eastern orange roughy stocks assessment through the relevant RAGs and report back for SESSFRAG chair's meeting in 2023.
6	4	AFMA to clarify with the relevant RAGs what the focus of a quantitative assessment or weight-of-evidence approach for non-eastern orange roughy stock are trying to achieve (e.g., evidence of stock recovery or stock status).
7	5	The risk associated with uncertainty in TAC setting process should appropriately be dealt with under the species buffer project being led by CSIRO which is well underway. In the meantime, the MYTAC review provides an opportunity for RAGS to review indicator data between assessments to ensure the underlying assumptions supporting increasing RBCs remain valid.
8	6	Tiger flathead and eastern redfish should be prioritised for CKMR scoping as part of existing CSIRO projects. In doing so, the RAG noted: <ul style="list-style-type: none"> • Scoping for jackass morwong has been completed and will be considered by SERAG later in 2022. • Some species, including school whiting and orange roughy, are not suitable for CKMR due to life-history characteristics. • SESSFRAG will provide advice on scoping prioritise for other species at its 2023 Chair's meeting. • Considering a range of criteria for the scoping project such as deciding whether the priority should be given to the rebuilding species or the conservation dependent species or those that are important for the fishery. This will need to be discussed at the SESSFRAG Chair's meeting 2023.
9	7	AFMA should consider a trial of an industry data collection program to supplement the existing ISMP program. This could be run in conjunction with the EM monitoring program trials.
10	7	There are opportunities for collaboration with the NSW DPI to explore ways of obtaining port-based biological samples from the non-representative zones in the ISMP.
11	8	Collect tissue samples when sampling otoliths for redfish to support CKMR study.
12	8	Remove the blue grenadier biological sampling targets for the GAB in the SESSF Data Plan.
13	9	Dr Sporcic to exclude any shots by all boats that operated in the seismic survey area from 1 Jan to 30 June 2020 from the CPUE standardisation for flathead and school whiting – not just those boats that were part of the BACI study.
14	9	Combine all automatic-longline gear codes and apply the appropriate DayNight (DN) adjustment for species CPUE standardisations.

15	9	Recalculate discard estimates with the revised rule for this year.
16	9	Update the discard estimates to account for spawning strata. Revised estimates of discards will be taken to relevant RAGS in 2022/23, and advice sought on a case-by-case basis for TAC setting purposes
17	9	CSIRO/SharkRAG 2023 to review GHAT logbook data to see if there are any boat-level trends in reporting behaviour that would undermine the outcomes of the ABARES congruence analysis.
18	10	Only include the 2020 and 2021 acoustic biomass estimates of the winter spawning blue grenadier in the 2022 stock assessment and do not use 2019 data as the base case.
19	10	Dr Tuck to run three sensitivity analyses: <ul style="list-style-type: none"> 4. including the 2019 acoustic biomass estimates, 5. using the highest estimate from the 2020 survey as a 'best case scenario', and 6. not including any of the new acoustic survey data.
20	10	Change in the spawning behaviour of the Cascade orange roughy is noted as unusual, therefore a bio-chronological study is required to understand whether this is coming from one fish stock or several different stocks.
21	10	Due to the issues with the historical catch data (which is under investigations by CSIRO and NSW fishery), it is suggested to rely on the existing catch history series for this year's stock assessments until the issues get resolved.
22	10	Western Australia Bight redfish catch should not be included in the 2022 Tier 1 base case. However, subject to CSIRO/Dr Knuckey providing information on stock structure, GABRAG may choose to consider it as a sensitivity analysis.
23	10	SESSFRAG reaffirmed their decision to postpone the school whiting stock assessment to 2024.
24	11	Endorsed the changes made on the SESSF and ISMP data plans and recommended: <ul style="list-style-type: none"> • AFMA to remove biological sampling targets for blue grenadier in the GABT from the SESSF Data Plan. • AFMA to add the collection of redfish tissue samples to the SESSF data plan. • AFMA to remove smooth oreo otolith targets.