



Australian Government
Australian Fisheries Management Authority



**Sub-
Antarctic
Resource
Assessment Group
(SARAG)**

**FINAL MINUTES
SARAG 57**

28 FEBRUARY 2018

SUB- ANTARCTIC RESOURCE ASSESSMENT GROUP (SARAG)

CHAIR: Prof John Buckeridge

Date: 28 February 2018

Venue: Australian Antarctic Division, Channel Highway, Kingston

Attendance

Members

Prof John Buckeridge, Chair
Dr Rich Hillary, CSIRO
Dr Philippe Ziegler, AAD
Dr Dirk Welsford, AAD
Mr Martin Exel, Industry Member
Mr Malcolm McNeill, Industry Member
Ms Jo Fisher, AFMA
Ms Sarah Kirkcaldie, Executive Officer, AFMA

Observers

Dr Heather Patterson, ABARES
Mr Tamre Sarhan, AFMA observer
Mr Martin Tucker, AFMA observer
Mr Peter Neville, SouthMAC Chair
Mr Rhys Arangio, Industry Member
Mr Tim Lamb, AAD*

*Agenda items 20/21 only

Introduction

Agenda item 1 - Preliminaries

The fifty-seventh meeting of the Sub-Antarctic Resource Assessment Group (SARAG 57) was opened at 8:40 am on 28 February 2018 by the Chair, Professor John Buckeridge.

1.1 Declaration of interests

Professor Buckeridge asked members and observers to state their name and profession and declare any conflict of interest that they may have on specific agenda items.

Professor Buckeridge declared he has no pecuniary interest in the sub-Antarctic fisheries.

Dr Hillary advised that he is employed by CSIRO and is the Principal Investigator of the MITF stock assessment. He also advised that he is a member of AFMA's Southern Bluefin Tuna Management Advisory Committee (SBTMAC) and Tropical Tuna RAG. Dr Hillary advised that he has no pecuniary interests in the sub-Antarctic fisheries.

Mr McNeill advised he is the Managing Director of Australian Longline P/L which holds various fishing rights in, and operates vessels in the sub-Antarctic fisheries and New and Exploratory fisheries under the jurisdiction of CCAMLR. Mr McNeill further advised he is a member on SouthMAC, Board member of the Coalition of Legal Toothfish Operators (COLTO). Mr McNeill was not aware of any investigation or prosecution action by AFMA against his Company or of any legal action taken by his Company against AFMA.



Mr Exel advised that he is the General Manager, Environment and Policy, Austral Fisheries Pty Ltd. Austral Fisheries P/L owns Statutory Fishing Rights (SFRs) in the Australian sub-Antarctic fisheries and waters under the jurisdiction of Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Mr Exel also declared that he is a Director of the Institute of Marine and Antarctic Studies (IMAS), Member and public officer of the Commonwealth Fisheries Association (CFA), member of the South East Trawl Fishing Industry Association (SETFIA), Deputy Chair of the Great Australian Bight Industry Association, Member of Coral Sea Fishers Association. Mr Exel further advised that he is a member of the "National Benefit Assessment Panel" for the Marine National Facility (the RV Investigator). He was not aware of any investigation or prosecution action by AFMA against his Company or of any legal action taken by his Company against AFMA.

Dr Welsford advised that he is employed by the Australian Antarctic Division (AAD) and no research grants contribute towards his salary. Dr Welsford advised that AAD get core funding but also seek grants from Fisheries Research and Development Corporation (FRDC) and AFMA. However, members noted that Dr Welsford salary was not connected to the FRDC grants. Dr Welsford further advised he is the Scientific Committee representative to CCAMLR, Chair of the Working Group for Fish Stock Assessments (WG-FSA) and a member on the Torres Strait Scientific Advisory Committee.

Dr Ziegler advised that he is employed by AAD and is the Fishery scientist responsible for HIMIF work including the HIMI stock assessments. Dr Ziegler has no pecuniary interest in the sub-Antarctic and his salary is not connected to any research grants noting that he is a co-investigator on a FRDC project and future FRDC projects.

Ms Fisher advised she is employed by the Australian Fisheries Management Authority (AFMA) as the Manager for sub-Antarctic fisheries at AFMA. Ms Fisher advised she has no pecuniary interests in the sub-Antarctic fisheries.

Ms Kirkcaldie advised she is employed by AFMA as a Senior Management Officer and advised that she is also the Executive Officer for Sub-Antarctic Management Advisory Committee (SouthMAC) and the Southern Bluefin Tuna MAC (SBTMAC). Ms Kirkcaldie advised that she has no pecuniary interests in the sub-Antarctic fisheries.

Dr Patterson advised she is an employee of the Department of Agriculture and Water Resources and is the Editor of the Australian Bureau of Agricultural Resource Economics and Sciences (ABARES) Fishery Status Reports. Dr Patterson noted that she had no pecuniary interest in the sub-Antarctic fisheries.

Mr Neville declared that he was the Principal of a fisheries consulting business (P.J.Neville & Associates) and Chair of the Northern Territory Barramundi Fishery and Chair Fisheries Research and Development Corporation's (FRDC's) recreational fishing sub-program. Mr Neville advised that he has no pecuniary interest in the sub-Antarctic fisheries.

Mr Tamre Sarhan advised he is an AFMA observer. Mr Sarhan stated that he has no pecuniary interests in the sub-Antarctic fisheries.

Mr Martin Tucker advised he is an AFMA observer. Mr Tucker stated that he has no pecuniary interests in the sub-Antarctic fisheries.

Mr Arangio advised that he is an observer to SARAG. Mr Arangio is employed by Austral Fisheries P/L that owns Statutory Fishing Rights (SFRs) in the Australian sub-Antarctic



fisheries and waters under the jurisdiction of Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR). Mr Arangio further advised he is the Executive Officer of COLTO. He was not aware of any investigation or prosecution action by AFMA against his Company or of any legal action taken by his Company against AFMA.

1.2 Apologies and observers

Apologies were received from CSIRO member Dr Malcolm Haddon and CSIRO observers, Dr Jemery Day. SARAG welcomed observers Mr Peter Neville, Mr Tamre Sarhan and Mr Martin Tucker.

1.3 Agenda

SARAG adopted the agenda with no changes (Attachment A)

Agenda item 2 – Adoption of minutes from SARAG 56

Members noted that the draft minutes from SARAG 56 were circulated for comment on 6 October 2017. Comments were received from Mr Martin Exel, Mr Malcolm McNeill, Dr Malcolm Haddon and Dr Philippe Ziegler. Members noted that the minutes from SARAG 56 meeting are now finalised.

Agenda item 3 – Actions arising from SARAG 56

SARAG discussed the status of action arising items from SARAG 56.

Item	Action arising	Status
1	Toothfish model - CSIRO and AAD to discuss and develop a scoping paper of the cost/benefits of developing a new Toothfish stock assessment model.	Members noted that this item would be discussed under Agenda item 9.
2	Analysis of 2016/17 Toothfish catch rates - AAD to update graphs at the end of the season	Members noted that this item would be discussed under Agenda item 14.
3	Tags - AAD agreed to investigate if tags from the trawl fishery could be used in the stock assessment.	Members noted that AAD provided a verbal update and stated that there had been no change since the last SARAG meeting (Action arising 1)
4	Tagging program - industry requested that an enhanced tagging program be designed to ensure all future tagging data can be maximised in the assessment process	AAD provided a verbal update noting that the tagging program will be



		discussed this year and is in AAD's workplan.
5	Skates/rays - AAD and AFMA to communicate best handling practices for skates and rays with observers by start of next season	Members noted that this item would be discussed under Agenda item 21.
6	ERA/ERM reports - AFMA to circulate final reports for information.	Members noted that this item would be discussed under Agenda item 11.
7	Year Class Strength (YCS) - AAD to provide feedback from discussions with New Zealand and UK on the weak declining YCS.	AAD noted that YCS was in AAD's workplan this year. Members noted that at CCAMLR 2017, YCS was discussed but it was not listed as a high priority. Australia has had initial discussions with NZ and UK. Members noted that YCS would be discussed at the CCAMLR independent stock assessment workshop to be held later this year.
8	Year Class Strength - to be put on the agenda for SARAG 57.	Action arising 8 was discussed under action arising 7.
9	South Georgia - CSIRO agreed to circulate a paper on South Georgia setting a lower TAC than presented to CCAMLR	Dr Hillary provided a verbal update noting that estimating Maximum Economic Yield (MEY) is sometimes used as a basis to set a lower TAC. Members noted that the CCAMLR target is 50% spawning biomass and re-run model with 55% (expected MEY achieved at 55%). Dr Hillary agreed to circulate the paper (Action arising 2). Industry noted that South Georgia is very different to HIMI and has been at 50% for a while.
10	HIMI Patagonian Toothfish TAC - AAD to circulate revised stock assessment before it is submitted to CCAMLR	Members noted that a paper was distributed on 18 September 2017.
11	Grenadier assessment - AFMA to include a revised grenadier assessment in the 5-year Strategic Research Plan	Members noted that this item would be discussed under agenda item 24.



12	Recording of skates and rays - AFMA and AAD to discuss how skates and ray catch should be recorded on CCAMLR forms	The AFMA member explained that she went through the C2 and thoroughly explained the requirements to industry in an email.
13	Porbeagle shark - EO to circulate draft paper on the status of the Southern Hemisphere porbeagle shark.	Members noted that the draft paper was distributed on 29 September 2017. Industry requested that SARAG is notified when the paper is finalised so that the Marine Stewardship Council can be informed (Action arising 3)
14	5-year strategic research plan - to be discuss at SARAG 57	Members noted that this item would discussed under agenda item 24.
15	Annual Research Statement - AFMA, AAD and Industry to discuss out-of-session and finalise the Annual Research Statement.	Members noted that the Annual Research Statement was finalised.
16	Joint Australia-France research action plan - AAD to circulate terms of reference (ToR).	The AAD member noted that there is still ongoing discussions regarding the final ToR. Members noted that the ToRs were not discussed at the recent Kerguelen symposium but AAD will follow up and provide the final ToRs (Actions arising 4)

Agenda item 4 – Correspondence

SARAG noted the following correspondence which had been received out-of-session since the last meeting in September 2017:

- An email dated 15 September 2017 from Jo Fisher providing members with the final draft HIMI toothfish stock assessment for comment;
- An email dated 29 September 2017 from Sarah Kirkcaldie providing members with the draft Southern Hemisphere porbeagle shark stock status assessment and the final sub-Antarctic Annual Research statement for 2018-19;
- An email dated 6 October 2017 from Sarah Kirkcaldie seeking comments on the draft minutes for the SARAG meeting held on 6 October 2017;



- An email dated 30 October 2017 from Sarah Kirkcaldie seeking comments on the on the recommended bycatch limits for the HIMIF and MITF; and
- An email dated 9 November 2017 from Sarah Kirkcaldie attaching the research call for the AFMA Research Committee's 2018 funding round for potential funding in 2018-19.

Agenda item 5 - Fishing operations update

Mr Arangio and Mr McNeill provided SARAG with verbal updates on fishing operations in the Heard Island and McDonald islands Fishery (HIMIF), Macquarie Island Toothfish Fishery (MITF) and CCAMLR New and Exploratory fisheries.

Mr Arangio noted that in the 2016/17 HIMIF season Austral Fisheries Pty Ltd had caught all of their quota plus some of Australian Longline Pty Ltd's (ALPL) quota. Members also noted that no bycatch limits were triggered in the 2016/17 season. Industry noted that they had attempted to recover lost gear on 1 December 2017 but that it was not as successful as previous attempts. Members noted that two Austral Fisheries vessels spent 2-3 days each looking for lost gear. Mr Arangio stated that all vessels are currently tied up in Mauritius with the *Atlas Cove* expected to leave port in about 10 days to do the random stratified trawl survey (RSTS). The *Isla Eden* and *Corinthian Bay* are expected to depart about a week after the *Atlas Cove* and they will be attempting to recover some lost gear before the longline season starts on 1 April 2018.

Mr McNeill also stated that ALPL had searched for lost gear at the end of the 2016/17 HIMIF season and recovered 3,000m of IUU gear. Mr McNeill said that they intended on going to HIMIF early and grapple for longline left in water from last season. He further noted that they will also be doing the same thing at MITF for the 2018/19 season.

Members noted that one ALPL vessel was fishing in the Exploratory Ross Sea Fishery in the 2017/18 season. Members noted that the Ross Sea Marine Protected Area and thick sea ice had caused problems this season. The sea ice was very thick most of the season and covered most of the fishing grounds and resulted in a lot of clustering of fishing vessels. Members noted that one region in the North of 88.1 was issued with a closure notice as soon as the fishery opened, based on the number of vessels in the area as well as catch rates from the 2016/17. Members noted that the ice cover in the 2016/17 season was much lower than in the 2017/18 season. This resulted in the area being significantly undercaught when it was closed. Members noted that the area was then opened a few days later and then closed again, with a significant amount of the catch limit uncaught. Members noted that this issue will be discussed at CCAMLR as some vessels (including ALPL vessel *Antarctic Discovery*) stayed in the region when the area was first closed, as there was an expectation that the area would re-open, however other member vessels left the area.

Mr McNeill stated that two vessels fished in East Antarctica. The *Antarctic Chieftain* fished in areas 58.4.1 and 58.4.2. The *Antarctic Discovery* moved to area 58.4.1 once it had finished fishing in the Ross Sea. Members noted that one country (Spain) was still currently fishing in the area but all Australian operations had been completed and had been restricted by the research areas, sea ice and bycatch.



Mr Exel, Mr McNeill and Mr Arangio declared their interest under all agenda items and Dr Rich Hillary declared his interest under agenda item 23 - recent research. These four members and observers left the room. SARAG then discussed whether the members and observers needed to leave the room for any agenda items; it was agreed that, as their input was essential to the agenda items, they should remain in the meeting room for all discussions but not any recommendations.

Macquarie Island Toothfish Fishery

Agenda item 6 – Macquarie Island non-assessment year data summary

Dr Hillary led a discussion on the process for the Macquarie Island Toothfish Fishery assessment for the 2020-21 and 2021-22 seasons. Dr Hillary noted that CSIRO would require the data on time if the assessment is going to be done before the end of June 2019. AAD noted that the data is on track and it will be provided as soon as possible noting that new ageing data will not be provided as it is not included in this assessment.

Members also noted that SARAG 51 agreed that the MITF assessment should move to a biennial cycle and as a result there will be years when a stock assessment will not be completed for the MITF. SARAG 55 agreed that CSIRO would prepare a data summary in each non-assessment year.

Members noted that at SARAG 56, CSIRO presented a paper titled 'Impact of spatial tagging rates for key estimates coming from the Macquarie Island Toothfish assessment' which discussed the future research that could be conducted in an MITF non-assessment year. Dr Hillary advised that he would provide an update at the next SARAG meeting when all the data (rates of return and length-frequencies) has been provided.

Agenda item 7 – Fishery Assessment Plan 2018 – 2020

Members noted that the Fisheries Assessment Plan (FAP) is a requirement of the Macquarie Island Toothfish Management Plan 2006 and it is revised every two years. The AFMA member noted that a few issues arose during the last fishing year and proposals to resolve these issues have been incorporated into the draft MITF FAP 2018-2020. AFMA sought clarification and Industry confirmed that ALPL will be the only company operating a vessel in the MITF in 2018 season and that is expected to be case in the 2019 season also.

SARAG agreed that a continuation of a tagging rate of two tags per tonne of toothfish caught is appropriate for the MITF 2018/19 and 2019/20 fishing seasons. Members discussed the tag overlap percentage and noted that this issue was discussed at CCAMLR and it was agreed that a 60% tag overlap was acceptable however, 80% was better. Members further noted that the statistical benefit between 80% and 100% tag overlap was minimal. SARAG agreed that 60% tag overlap should be the minimum standard with 80% the target. Industry noted that that at MITF there are areas where there are big spawning fish which can be difficult to tag and also requested that there be some consistency between fisheries noting that CCAMLR new and



exploratory fisheries have a tag overlap of 60%. Members noted that industry has a responsibility to work with observers to achieve tag overlap.

Agenda item 8 – Extension of Macquarie Island season

SARAG noted that AFMA has received a request from Industry to extend the Macquarie Island Toothfish Fishery longline season by one week at the end of the season (until 7 September).

The AFMA member stated because of trade reasons, ALPL expects to now unload product from the MITF into Tasmania each year noting that previously unloads have typically occurred in New Zealand. Industry usually conducts two trips to the MITF each season and steaming time from the Fishery to Tasmania is approximately two days longer than to New Zealand, resulting in an extra four days mid-season travelling from and to Macquarie Island. In addition, facilities in Tasmania mean that unload will take an extra day. Members noted that this collectively results in a loss of 5 fishing day's mid-longline season.

SARAG noted that the longline season is specified in the SFR conditions for the Fishery and the current longline season extends from 15 April to 31 August each year, when seabird activity in the area is considered to be lowest. Other seabird mitigation measures in place include:

- a requirement to use paired streamer lines;
- a requirement to use integrated weighted line;
- setting at night only; and
- a collective one seabird limit for five seabird species of concern.

SARAG noted that AFMA had discussed extending the season by a week with AAD and AAD had not raised any concerns. Members noted that Mr Barry Baker had previously prepared a paper on bird populations and movement. The paper discussed avoiding birds but maximising operations by using bird mitigation measures.

Members agreed that if the season was extended then the observer report for that trip should be used to assess whether bird observations are higher in the first week in September compared to the last week in August. This should be referenced with number of hooks set in each week and whether any birds have been caught (**Action arising 5**).

SARAG supported an ongoing one week extension to the Macquarie Island Toothfish Fishery longline season with a summary of seabird observations and interactions produced at the end of the 2018/19 season. SARAG noted that Industry may request a further extension if required for operational reasons. The recommended dates for the longline season could be 15 April to 7 September each year. SARAG noted that SouthMAC will also be asked to consider Industry's request, before the AFMA Commission is asked to make a decision.

Agenda item 9 – Revised stock assessment model

SARAG discussed the revised tag-based stock assessment model for the Macquarie island Fishery.

CSIRO advised that there are three options for future stock assessments:



1. Do the assessment in a version of the current stock synthesis model noting that the current version is unsupported and needs replacing;
2. Use the same model as CCAMLR (CASAL) noting that CASAL 2 has been developed by NZ; or
3. Design a new stock assessment model.

Dr Hillary noted that the concern was how to best use the tag data and stated that the current Synthesis model was acceptable although he believed there was a better model for the MITF. Members noted that CASAL was good for taking into consideration tag shedding and tag mortality, however, it is not well designed to do a spatial assessment. Dr Hillary recommended a specific new model would be best options using the latest software (Brownie likelihood).

Members agreed that if there was a choice it would be better to develop a new Toothfish stock assessment model.

CSIRO agreed that the next MITF stock assessment to be considered by SARAG, in mid-2019, would use the new model. CSIRO noted that any issues with the stock assessment would be resolved before the assessment is presented to SARAG, and that the revised stock assessment could be used to inform the TAC setting process for the 2020/21 and 2021/22 fishing years.

Heard Island and McDonalds Islands Toothfish Fishery

Agenda item 10 – Season extension trial

SARAG noted that currently the HIMI Fishery has 3 pre- and post-season extension trials (1-14 April, 1-14 November and 15-30 November). Members noted that the hook set requirements for the 1-14 November and 15-30 November trial periods have been met. However, the hook set requirements for the 1-14 April period have not been met. Of the required 500,000 hooks to be set during daylight hours, 223,084 hooks have been set.

Members noted that the long-term goal is to manage the Fishery with three fishing seasons: pre-season, core season and post-season. This is conditional on the results of the 3 trial season extensions, effects of expansion of the Fishery and agreement within CCAMLR.

To achieve the goal of managing the fishery with three fishing periods, the trial (1-14 April) needs to be concluded so that the data can be assessed and a long-term decision can be made on the HIMI season extension periods.

Industry indicated that they are not willing to commit to setting more daylight hooks in the 1-14 April period if it poses a risk to seabirds just to complete the trial.

SARAG agreed that AFMA and AAD would discuss appropriate measures (performance criteria) to determine the success of the trial before any analysis is done so that it can be concluded if the criteria are met or not. The aim would be to present the results to CCAMLR in 2019 (**Action arising 6**)



Agenda item 11 – Ecological Risk Assessment

Members noted that at its meeting in September 2016, SARAG had considered draft Ecological Risk Assessment (ERA) reports for the following three methods in the HIMI Fishery:

- demersal longline
- demersal trawl
- midwater trawl

AFMA then recirculated the three draft reports to members for comment in April 2017. CSIRO considered all comments received, and provided the final draft three reports to SARAG. Industry provide some further comments on re-wording the section regarding the impact of Patagonian Toothfish in the longline ERA as well as updating the table on when species were last assessed for both rockcod and skates and rays. AFMA agreed to provide these comments to CSIRO and request a new version of the document, before reports are placed on the AFMA website (**Action arising 7**).

The AFMA member explained that the MITF ERA is scheduled for 2019 and the only methods assessed will be those used in the last 5 years (since the last ERA).

SARAG agreed to write to Dr Cathy Bulman and Dr Miriana Sporcic to thank them for all their hard work and dedication producing the three HIMIF ERAs (**Action arising 8**).

Agenda item 12 – Fisheries Management Strategy (FMS)

SARAG noted that AFMA management, in consultation with the relevant RAG and MAC, is required to develop a FMS within five years of completing the ERA for that Fishery.

Members noted that FMS are designed to integrate and replace previously existing and separate fishery specific management strategies (ie harvest strategies, ecological risk management strategies, research strategies and data strategies). The FMS is then used to guide the development of an integrated Annual Fishery Workplan, and AFMA's progress against each FMS (and thus its performance against legislated objectives and requirements) is reported in Annual Fishery Management Strategy Reports for each fishery.

The Eastern Tuna and Billfish Fishery (ETBF) is being used as a test case for the Fishery Management Strategy work and SARAG noted the draft framework of the ETBF FMS and requirement that this must be completed for all Commonwealth fisheries. Industry stated that this should be a single document that is able to be used for all reporting requirements including *Environment Protection and Biodiversity Conservation Act* requirements.

Agenda item 13 – Tagging mortality

The AFMA member explained that towards the end of the 2016/17 fishing season, AFMA observers reported seeing toothfish that appeared healthy but on closer inspection had lice emerging from their anus. The following is from an observer report:

When selecting suitable fish for tagging the observer recommends that the anus of the toothfish be checked for lice ingress. Some fish are found to have small wounds to their anus from lice ingress even though externally they look in perfect condition with no scale loss and are swimming upright in the tagging tank. Once fish with wounds around the anus were sampled there were lice found inside the fish's gonads.



SARAG noted that AFMA will raise the issue with Antarctic observers at the annual observer workshop on 2 March 2018 and will reiterate the importance of ensuring that only high quality fish with a high chance of survival be tagged and returned to the water. AFMA also agreed to amend the internal AFMA trip report to include a section explaining this issue and seeking any feedback on ways to improve survivability of tagged fish.

SARAG agreed that a guide to best handling practices for tagging Patagonian Toothfish should be produced for observers. The AFMA observer noted that the observer should look for blood around anus, pitting around dorsal fin and lice in gills. Another indication of a good fish to tag is one that it is still swimming upright in the tanks and looks healthy. The AFMA observer noted that he believed the lice infest the fish after it is hooked, i.e. the fish may stir up the bottom when hooked and disturb the lice. He further noted that observers should take advantage of short soak times and shallow lines and no lice when electing to tag a fish. The observer also highlighted that benthic cameras are providing vessels with information about where lice are found.

SARAG noted how valuable this sort of information from observers is and agreed that a new section (observer update) would be added to standing agenda item 5 - Update on fishing operations (**Action arising 9**).

Agenda item 14 – Analysis of 2016/17 toothfish catch rates

At SARAG 55, AAD agreed to prepare an analysis of the 2016/17 catch rates, to inform members on whether a stock assessment is required in 2018, noting that 2018 is a non-assessment year in the CCAMLR stock assessment cycle.

SARAG noted the document titled '2016/17 HIMI fishing season - end-of-season catch and catch rate exploration' produced by AAD.

SARAG noted that at the start of the 2017 fishing season, longline catch rates in the Patagonian Toothfish Fishery at HIMI were again lower than in previous fishing seasons. Catch rates had recovered to a large degree by June but remained below the long-term average until the end of the fishing season in November. AAD noted that standardised catch rates have decreased over the years, but slightly recovered in 2017 after a steep decline in 2016. Members noted that this indicates that 2016 was an unusual year.

Industry highlighted that in 2016, 12% of fishing took place on previously unfished areas and that figure dropped to 4% in 2017.

SARAG noted that spawning biomass was at 60% in 2017 and the catch rates were lower than what the stock assessment is indicating from tagging rates. AAD noted that catch rates are no longer used in stock assessment as they made little difference to the assessment.

Industry highlighted that the analysis showed that twice as many fish taken out of North East as opposed to the North West. Industry questioned if something has happened to the spawning stock in the North West which is not happening in North East where there is shallower water and smaller fish.

SARAG agreed that there was no need for a HIMIF stock assessment in 2018.



Agenda item 15 – Fishery Assessment Plan 2018-2020

SARAG noted that the FAP is a requirement of the Heard Island and McDonald Islands Fishery Management Plan 2002. Members noted that AFMA produced a draft 2017/18 – 2018/19 HIMI FAP which incorporated suggestions to clarify issues that have arisen over the past fishing year.

Similar to MITF, SARAG agreed to a tagging rate of two tags per tonne of Toothfish and a tag overlap minimum of 60% with the aim of 80% in the HIMIF.

Members noted that there had been a proposal to remove the number of days required to complete Random Stratified Trawl Survey (RSTS) from the FAP as the number of days was not thought to add any value to the FAP. SARAG agreed that FAP did not need to include number of days for the RSTS work. SARAG noted a previous SouthMAC decision that the RSTS must be started no earlier than 20 March. SARAG agreed the FAP should be completed as quickly as practicable and must be completed by 30 May each year.

Industry agreed to provide further comments out-of-session and AFMA would finalise the FAP and send it to industry for completion (**Action arising 10**).

Industry stated that a RSTS costs about \$33,000/day to run the trawl boat for the 21 days of the RSTS.

CCAMLR & Exploratory Fisheries

Agenda item 16 – Update on East Antarctic genetics project

SARAG noted that the FRDC funded project titled 'Stock Connectivity of Antarctic Toothfish (*Dissostichus mawsoni*)' had commenced with Mr Dale Maschette collecting samples on board the *Antarctic Chieftain* in the East Antarctic. AAD advised that the project is a 1-year pilot project that aims to evaluate the genetic structure of Antarctic toothfish in Antarctic waters and has the potential to estimate biomass in East Antarctica using a close kin mark-recapture method. AAD noted that the knowledge from the project is expected to be transferrable to the HIMIF and MITF.

Members noted that the project is on-track and that Mr Maschette had collected approximately 2,800 samples and was now in the process of analysing around 600 samples. AAD thanked the AFMA observers for assisting Mr Maschette whilst on board the *Antarctic Chieftain*.

Research

Agenda item 17 – Estimate of natural mortality (M)

SARAG noted that estimating natural mortality has been identified as high priority by Industry. Members noted that Dr Simon Wotherspoon and Dr Jim Dell have been worked on updating the Steve Candy (2010) estimation of M. Members noted that Steve Candy's estimation was based on tag re-capture from Evitas. AAD reported that this was still a work in progress and had proven to be very complicated with not many researchers having tried it.



SARAG noted that industry meet with the Drs Wotherspoon and Dell yesterday and discussed progress.

Industry stated that the outcomes of yesterday's meeting were:

- That $M=0.155$ will continue to be used until a better estimation can be determined;
- An outline of the process to ensure that all required data to estimate M is available in the future eg. Specific tagging program; and
- Drs Wotherspoon and Dell would look at the French longline data so that the longline data set from both Australian and France can be used.

SARAG noted that the results of the work on estimating M will be discussed at the next SARAG meeting. (**Action arising 11**)

Agenda item 18 – Verbal update on whale depredation research

The industry observer provided an update on the whale depredation research noting that Dr Paul Tixier had deployed acoustic recorders. Dr Tixier is currently reviewing the recordings with the French researchers with the aim of reporting back to industry by May 2018. Industry agreed to provide the report to the Executive Officer so that it can be circulated as soon as it is available.

Members noted that the recorders have also been used for listening to sperm whales. The recorders have picked up whale clicks and the researchers have developed a program that now identifies those noises automatically. Members noted that the French researchers and Dr Tixier have a close working relationship and are working on the similar projects co-currently.

Members noted that Dr Tixier will be speaking at the Marine Ecosystem Assessment for the Southern Ocean (MEASO) conference in April 2018. Dr Tixier's presentation will discuss the broader distribution of sperm and killer whales in the Southern oceans. AAD advised that Dr Tixier made a presentation at the Kerguelen Symposium last year that was well received.

Industry noted that that HIMI boats saw some whales in November last year. Apparently the whales wait until the Patagonian Toothfish are hooked and then eat them rather than actively search for prey.

Industry advised that they deployed two acoustic devices in the waters of the HIMI Fishery last year, and will retrieve these devices in the first and second trips of 2018.

Agenda item 19 – Kerguelen Plateau Symposium outcomes

SARAG noted that the second Kerguelen Plateau Symposium on Marine Ecosystems and Fisheries was held in mid-November 2017. The meeting brought together more than 70 researchers studying in the Australian and French regions of the Kerguelen Plateau.

Members noted that there was a diverse range of presentations that included topics such as volcanic iron on Heard Island right through to fishery management in the region.



SARAG noted that the last session of the Symposium was a workshop that discussed what issues are a high priority for the Kerguelen Plateau and what could be done easily. AAD stated that moorings and observatories will be set up to get a better handle on long term change.

AAD stated that it is the intention of the organisers to publish a volume of peer-reviewed papers based on the Symposium presentations, as a way of maximising the impact of the Symposium. It is anticipated that this publication will be available in the next 12 months noting that all other information about the Symposium is available on the website.

AAD noted that there was a lot of goodwill in the room and information sharing and there was a desire to have the symposiums more regularly with France hosting the next symposium.

Industry supported holding a symposium every three years and extending the invitation to attend to AFMA observers, SARAG/SouthMAC chairs and acoustic researchers. Industry reiterated the importance of producing a publication as one was published after the first symposium and it has been a regularly referred to document.

AAD thanked industry and AFMA for supporting the Symposium and SARAG thanked AAD for organising.

Agenda item 20 – Analysis observer data on skate/ray life status

At SARAG 55, AAD agreed to examine the life status of skates and rays from observer data against vessels to see if there are any patterns that could support the development of a standard set of procedures for handling skates and rays in the Patagonian Toothfish Fishery at HIMI.

Members noted that based on observed counts of skates and rays during the line observation period in 2016 and 2017, the fate of skates and rays (alive or dead) varied strongly between vessels and years. Dr Ziegler noted that he looked at individual trips and the difference between trips on the same vessel and no particular pattern was obvious.

The AFMA observer noted that when CCAMLR requested that they record if the skates were alive or dead this was difficult to do as they often look dead when they are first returned to the water. Observers did not think they could be certain so recorded 'unknown'. The AFMA observer noted that he believed survivability decreased the deeper you fish as it takes too long for the skate to return to the bottom after release and it may get taken by lice. The AFMA observer believed skates caught and released in the shallows would survive better. Dr Ziegler noted that, in his analysis, all skates and rays recorded as 'unknown' were presumed alive. The AFMA observers questioned the figures in the analysis as that was not what they were seeing on the water.

Mr Lamb noted that the observers do a partial counts (no weights) of skates on the lines and then include what is retained on board (weight, count and species identification). Members noted that vessel counts are not currently accurate and usually done on a monitor scaling up 40% (observation). Members suggested retaining 10 skates and collecting data as an indicative proportion.

AAD agreed to consider what are appropriate, reliable indicators of skate and ray populations and what data is required to assess indicators (**Action arising 12**).



Agenda item 21 – Skate and Ray handling guide

Proposed change to the HIMI SFR condition

The AFMA member stated that previously the management arrangements for the HIMIF and MITF have not included specific detail on the handling of skates and rays. It was noted that at the last SARAG meeting members discussed skates and rays and agreed it was best to cut them off as hooks would rust out. In order to clarify management requirements, prior to the start of the 2017/18 season the HIMI SFR conditions were amended to address concerns around skates and rays. The current 2017/18 conditions state:

All skates and rays must be brought on board or alongside the vessel to be checked for tags and for their condition to be assessed. Recaptures tagged skates and rays should not be re-released. Unless otherwise specified by scientific observers, all other skates and rays caught alive with a high probability of survival should be released alive, by the boat, by cutting snoods, and when practical removing the hooks.

However, AFMA noted that after discussing this issue with observers and viewing video reports from last season, some skates may not have been assessed for condition and, when released, did not appear capable of swimming away. AFMA considers that the condition of skates and rays cannot be properly assessed if the skate/ray is only brought alongside the vessel and is not examined at a closer distance by a crew member. This is supported by WG-FSA's 2017 consideration of the issue. As such AFMA management is proposed that the SFR condition be amended to read:

All skates and rays must be brought on board or alongside the roller to be checked for tags and for their condition to be assessed. Recaptures tagged skates and rays should not be re-released. Unless otherwise specified by scientific observers, all other skates and rays caught alive with a high probability of survival should be released alive, by the boat, by cutting snoods, and when practical removing the hooks.

Draft Skate Best Practice Handling Guide

SARAG noted that following desktop research, consultation with observers, consideration of WG-FSA 2017 discussions and to provide guidance on best practice handling, AFMA has developed a draft Skate Best Practice Handling Guide. AFMA promotes best practice handling of bycatch in all fisheries, and recommends that all reasonable steps should be taken to remove hooks prior to skates being released. Removing the hook also provides deck crew the opportunity to make a more thorough assessment on the life status, determining whether the animal needs to be retained or released

In preparing the draft Handling Guide, observers noted that a number of skates are hooked through the wing and mouth and/or both jaws – these types of hooking may increase the chance of death if the hook is left in place. Some of these hookings are not visible until the skate is more closely examined. In addition, contrary to previous advice from SARAG, AFMA management considers that, due to the robust nature of modern day autoline hooks, it is unlikely that hooks will rust out of the animal in a short timeframe.

SARAG supported the draft Skate Best Practice Handling Guide prepared by AFMA and agreed that the SFR conditions should be amended as recommended by AFMA.



Agenda item 22 – Wentworth Group of Concerned Scientists – HIMI Fishery

Industry informed SARAG that in 2008, the Wentworth Group of Concerned Scientists and other experts in science, economics, statistics and public policy, published the Accounting for Nature model. This model places scientific information about the condition of environmental assets (native vegetation, soil, rivers, and fauna) into an accounting framework. This can help community and policy makers to understand complex scientific information that is needed to underpin policy and evaluate investment decisions, and the success of these investments over time.

Industry informed members that the Wentworth Group has approached Austral Fisheries Pty Ltd to help develop an environmental account for two Australian fisheries: the Patagonian Toothfish Fishery around Heard Island and McDonald Islands, as well as the Northern Prawn Fishery.

SARAG noted that the Patagonian Toothfish Fishery account will use the Accounting for Nature model to combine scientific information about the condition of the fishery into a common unit of measure called an Econd. Econds are scored between 0 and 100, where 100 represents the fishery in an undegraded state. Econds will be calculated for the target species (Patagonian toothfish) as well as those assets potentially impacted by the fishery (bycatch and benthic habitat) based on data already produced as part of MSC certification and environmental risk assessments.

Members noted that the fishery account will enable a broad audience including politicians to understand the condition of the fishery and how it has changed over time.

Agenda item 23 – Recent research

Members noted that this agenda item is an opportunity to discuss any planned research, any research currently happening and any recently completed research.

SARAG noted that the AFMA Research Committee (ARC) call for proposals closed on 31 January 2018. The only proposal received was from CSIRO relating to the MITF stock assessment. The AFMA member noted that the ARC will be considering full proposals at its 6 March 2018 meeting.

Dr Hillary stated that there would be no difference in cost between a bespoke model and using the CASAL model for the MITF. He further noted that CSIRO will still run the old assessment with the bespoke model in a branching bridging process to check that the number is not that different.

Dr Welsford stated that a validation step is key and CSIRO supported this. AAD noted that they have operating models that may be able to help.

Industry questioned if the bespoke model will be able to be used for other Patagonian Toothfish fisheries. AAD noted that they have discussed this for HIMIF but there needs to be consistency in CCAMLR. Members noted that there may be an opportunity to develop a HIMI bespoke model outside of the CCAMLR process that could be submitted for publication and accepted. Dr Hillary noted that the aim would be to produce a flexible and defensible new MITF model which would get peer reviewed.



Dr Hillary and Dr Ziegler, who is a co-investigator on the project, left the room and SARAG strongly supported the proposal going to the ARC given the limitations of the current Stock Synthesis model noting that it is a high priority for the Fishery. SARAG further requested a bridging analysis and validation with simulated data. The assessment will be discussed at the next SARAG meeting and this will provide an opportunity for review.

Industry noted that they are currently working with Sara Hornborg who is from the Research Institute of Sweden and is looking at the impact of fishery management decisions on carbon dioxide emissions. Members noted that the research will involve 3-4 studies around the world including comparing carbon emissions associated with the HIMIF over time (eg transition from trawl to longline fishery). This work is on-going and similar to the Wentworth Group and industry will provide an update at future SARAG meeting. The hypothesis of the project is that management decisions should take account of carbon dioxide emissions.

Agenda item 24 – Antarctic Fisheries 5 year strategic research plan

At SARAG 56, September 2017, members agreed that AFMA should draft the next 5 year strategic research plan for consideration at SARAG 57. Members noted that due to time constraints this work had not yet been completed. SARAG agreed that AFMA will, out of session and in consultation with relevant stakeholders, prepare a draft Antarctic Fisheries five year strategic research plan, and present a final draft to SARAG 58. Members noted that the 5 year strategic research plan is not due to be completed until 2019. Members noted that AAD and Industry were currently preparing a 5 year science workplan. Industry asked the observers to provide any feedback on research they believed may be needed in the next 5 years. Dr Patterson also agreed to check with the economic area of the Department of Agriculture to identify any needs.

AFMA agreed that a new question will be included on the AFMA supplementary observer report asking for suggestions on additional research for Antarctic fisheries (**Action arising 13**).

Industry sought clarification from AFMA on why quota price information was now required to be published. The AFMA member agreed to provide this information out-of-session (**Action arising 14**).

Dr Welsford advised that he is co-sponsoring Lyn Goldsworthy undertaking a PhD project looking at how and why CCAMLR works.

Environment

Agenda item 25 – Environmental interactions and gear loss

SARAG noted during the 2016/17 HIMI Fishery fishing season 17,089,615 hooks were set and there was seven seal and two seabird interactions resulting in deaths:



- 7/4/2017 - A White Chinned Petrel was foul hooked in the wing on setting on the vessel *Antarctic Chieftain*;
- 20/4/2017 - A Southern Elephant Seal was hauled tangled with the mainline on the vessel *Isla Eden*;
- 4/5/2017 - A Southern Elephant Seal was hauled tangled with the mainline on the vessel *Isla Eden*;
- 29/04/2017 - A Grey Petrel was hooked whilst setting the line on the vessel *Isla Eden*.
- 17/07/2017 – one southern elephant seal was mouth hooked and found dead on the line. Vessel *Antarctic Chieftain*.
- 15/08/2017 – one Southern Elephant seal was hooked in the mouth and wrapped in the mainline. Vessel *Isla Eden*.
- 17/09/2017– one unidentified seal was found dead tangled in the mainline. Vessel *Antarctic Chieftain*.
- 20/9/2017 - one Southern Elephant Seal was found dead tangled in the mainline on the vessel *Antarctic Chieftain*; and
- 6/11/2017 – one Southern Elephant Seal was caught on the mouth by a single hook when feeding on the line on the vessel *Antarctic Chieftain*.

SARAG noted that, as previously discussed, AFMA management and some stakeholders have concerns about the level of gear loss in the HIMI Fishery. In an attempt to reduce gear loss and properly accounting for its effects in the stock assessment process AFMA proposed the following management responses:

1. Mortality of fish caught on lost gear

- incorporating mortality on lost gear into the toothfish stock assessment - average catch rates per hooks set would be applied to lost hook numbers to estimate how much fish is likely to have been on lost fishing gear; and
- deducting the catch from lost gear from the quota holding of that fishing company.

2. Lost gear in the marine environment

- an obligation requiring operators to spend one day recovering gear at the start of each fishing trip for every 10,000¹ hooks lost on the previous fishing trip.

Industry supported the need to account for mortality of fish on lost line and agreed that AFMA should come back with a proposal to set aside quota to achieve this outcome. However, industry expressed concerns that the time already being spent attempting to recover gear is not being taken into consideration. The AFMA member suggested that the skipper inform the AFMA observer when they are searching for lost gear.

Industry proposed that, in addition to toothfish mortality on lost gear being incorporated into the stock assessment, the estimated catch on a company's net gear loss within a season be

¹ Rounded to the nearest 10,000 hooks (eg <5000 hooks = 0 days, 5-15,000 hooks = 1 day etc)



deducted from that company's quota holding in the following season. This would provide an incentive to recovery gear.

SARAG supported industry's proposal. The AFMA member stated that an AFMA would consider the proposal more carefully, for SARAG's consideration at the next meeting.

Agenda item 26 – Draft Seabird Bycatch Strategy

SARAG noted that AFMA has drafted a Seabird Bycatch Strategy (the seabird strategy) which is the first of a suite of sub-strategies being developed under the overarching AFMA Bycatch Strategy. The AFMA Bycatch Strategy serves as a guide for responding to bycatch issues across Commonwealth Fisheries in order to operationally pursue the objectives of the Government Bycatch Policy and higher legislation.

The AFMA member informed the group that the strategy aims to ensure consistency in the management of interactions between seabirds and Commonwealth fisheries using a risk based approach. This includes improved data collection and monitoring of seabird interactions; applying appropriate mitigation and management measures; streamlining consultative arrangements for seabird bycatch management; improving environmental stewardship by fishers and understanding cumulative impacts of Commonwealth Fisheries.

Members noted that the draft seabird strategy has been distributed for comment internally within AFMA, and externally to other government organisations and environmental non-government organisations.

Members agreed to provide any comments by 9 March 2018 (**Action arising 15**). Industry questioned if the strategy would be accepted by the Department of Environment to prevent any more additional work.

Agenda item 27 – Climate Change

SARAG noted that although climate change was discussed at the Kerguelen Symposium, there was no specific session to identify knowledge gaps. Members further noted that both the AFMA climate change project and the CCAMLR Climate Change Response Work Program are progressing, however again there are no specific actions as yet for the HIMI and Macquarie Island Fisheries.

The AFMA members highlighted that climate change had been discussed previously at meetings and members had agreed that this was an issue. Members noted that climate change is a quite slow and therefore hard to find causal links and a lot of money can be spent with little benefit. Industry requested access to the climate reports produced by the Institute for Marine and Antarctic Studies (IMAS) and Dr Hillary agreed to let IMAS know that SARAG was interested in this information (**Action arising 16**).

SARAG agreed that climate change should not be an ongoing agenda item but that it should be included in the Strategic Research Plan noting the need to look at management procedures and how robust it is to any changes so if get changes can adapt.



Other

Agenda item 28 – Other business

Indigenous and recreational membership on RAGs

The Chair noted that on 29 January 2018, dr Nick Rayns, AFMA, wrote to him providing an update on AFMA's implementation of the *Fisheries Legislation Amendment (Representation) Act 2017* which came into effect in November 2017. Members noted that as part of the implementation AFMA will extend membership of RAGs to include recreational and indigenous members where it is considered appropriate.

Members noted that there is no historical or current involvement of either recreational or indigenous fishers in sub-Antarctic waters. As such, members did not see an immediate need to involve these parties in SARAG or SouthMAC. However, members agreed that indigenous and/or recreational fishers should be encouraged to attend SARAG and/or SouthMAC as observers if they expressed an interest to do so. Members did not have any additional comments on the changes to FAP 12 or FMP 1.

The Executive Officer agreed to provide SARAG's comments to the AFMA Commission to inform its views on future RAG appointments (**Action arising 17**).

New Zealand tags

SARAG noted that AFMA had contacted New Zealand fisheries and no Australian tags had been recovered in NZ fisheries since the last meeting but stated that there had been low effort. The AFMA member agreed to respond to New Zealand to say that no New Zealand tags had been recovered in Australian fisheries either.

Agenda item 29 – Next meeting

It is proposed to hold the next face-to-face SARAG meeting on Wednesday 22 August 2018. The key items for discussion will be Mackerel icefish stock assessment and any other papers that will be present to the CCAMLR Working Group on Fish Stock Assessment (WG-FSA), noting that WG-FSA papers must be submitted by 24 September 2018. Members noted that an industry consultation meeting will be held at the same time. SARAG thanked the two AFMA observer for attending the meeting and providing invaluable insight and information.

The meeting closed at 3.05 pm on Wednesday 28 February 2018.



Sub-Antarctic Resource Assessment Group (SARAG) Meeting 57

Final Agenda

Wednesday 28 February 2018

8.30am – 5:00pm

Mawson Conference Room 3

Australian Antarctic Division – Channel Highway, Kingston

Introduction

- | | | | |
|-----|--|-------|------------------|
| 1. | Preliminaries | | |
| 1.1 | Declaration of interests | Chair | For Discussion |
| 1.2 | Apologies | AFMA | For Information |
| 1.3 | Adoption of Agenda | Chair | For Decision |
| 2. | Minutes from SARAG 56 | AFMA | For Information |
| 3. | Action Arising | AFMA | For Discussion |
| 4. | Correspondence | AFMA | For Discussion |
| 5. | Update on fishing operations (HIMI, MITF, Exploratory) | All | For Information* |

Macquarie Island Toothfish Fishery

- | | | | |
|----|---|-------|--------------------|
| 6. | Macquarie Island non-assessment year data summary | CSIRO | For Discussion |
| 7. | Fishery Assessment Plan 2018 - 2020 | AFMA | For Decision |
| 8. | Extension of Macquarie Island season | AFMA | For Recommendation |
| 9. | Revised stock assessment model | CSIRO | For Discussion |

Heard Island and McDonald Islands Fishery

- | | | | |
|-----|---|----------|-----------------|
| 10. | Season extension trial | AFMA/AAD | For Discussion |
| 11. | Ecological Risk Assessment | AFMA | For Information |
| 12. | Fisheries Management Strategy | AFMA | For Information |
| 13. | Tagging mortality | AFMA | For Discussion |
| 14. | Analysis of 2016/17 toothfish catch rates | AAD | For Discussion |
| a. | Trends in CPUE-biomass | AAD | For Discussion |



15.	Fishery Assessment Plan 2018 – 2020	AFMA	For Decision
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CCAMLR & Exploratory Fisheries

16.	Update on East Antarctic genetics project	AAD	For Information*
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Research

17.	Estimate of natural mortality	AAD	For Discussion*
18.	Verbal update on whale depredation research	Industry	For Information*
19.	Kerguelen Plateau Symposium outcomes	AAD	For Information*
20.	Analysis observer data on skate/ray life status	AAD	For Discussion
21.	Skate and Ray Handling Guide	AFMA	For Discussion
22.	Wentworth Group of Concerned Scientists – HIMI Fishery	Industry	For Discussion
23.	Recent research	All	For Discussion
24.	Antarctic Fisheries 5 year strategic research plan	All	For Discussion

Environment

25.	Environmental interactions and gear loss	AFMA	For Information
26.	Draft Seabird Bycatch Strategy	AFMA	For Discussion
27.	Climate Change	AFMA/AAD	For Discussion

Other

28.	Other Business	Chair	For Discussion
29.	Next Meeting	Chair	For Discussion

* Verbal update, no agenda paper provided

