

Sub-Antarctic Fisheries Assessment Group Meeting 21

13 September 2004

Hobart Function and Conference Centre,

Elizabeth Street Pier, Hobart

MINUTES

Attendance

Members

Dr Malcolm Haddon – Chair
Dr Campbell Davies, AAD
Dr Geoff Tuck, CSIRO
Ms Viki O'Brien – AFMA
Mr Martin Exel, Industry
Mr Les Scott, Industry
Dr Graham Robertson, AAD (after lunch only)

Apologies

Dr Andrew Constable, AAD
Dr Nick Gales, AAD
Mr Barry Baker, AAD
Mr Graham Love, ABARE
Mr Peter Neave, Executive Officer
Mr Stuart Richey, Industry
Dr Rosemary Gales, DPIWE

Introduction

Agenda item 1 - Preliminaries

The 21st meeting of SAFAG was opened at 8:30 am. The primary purpose of the meeting was to review the Heard Island and McDonald Islands (HIMI) Fishery stock assessments prior to their submission to CCAMLR's Working Group on Fish Stock Assessment (WG-FSA). Given the limited availability of time and Members the Agenda for this meeting was intentionally kept short.

1.1 Apologies

Apologies were received from Dr Constable, Dr Nick Gales, Dr Rosemary Gales and Messrs Baker, Love, Richey and Neave.

1.2 Adoption of agenda

The Agenda was adopted with the addition of the following items:

- 3.2 Skates and rays – stock assessment
- 6.2 Collaborative work with the French

1.3 Adoption of Minutes from SAFAG 20

Given the large number of Members absent from the meeting, SAFAG agreed to defer the adoption of the Minutes from SAFAG 20 until SAFAG 22. The following amendments were suggested and it was agreed that these should be reflected in the Minutes in edit mode and provided for the consideration of SAFAG 22:

Action Arising 16 replace the word 'Determine' with 'Examine';

Action Arising 23 replace the word 'support' with 'endorse';

Page 10 Add Les Scott to the seabird/mammal bycatch review group; and.

Page 11

Amend last sentence of the first paragraph to read: 'Mr Exel stated he would be happy to trial mitigation measures, such as, paired streamer lines from his Company's vessels and requested Dr Robertson provide further details on design'.

Heard Island and McDonald Islands Fishery

Agenda item 2 – Toothfish stock assessment

Dr Davies tabled paper SAFAG 21/1 entitled '*Preliminary assessment of Patagonian Toothfish, *Dissostichus eleginoides*, for the Heard Island Plateau region (CCAMLR Division 58.5.2) based on a random stratified trawl survey in May 2004*'. He indicated that this paper did not differ significantly from the paper he presented at the HIMI stock assessment meeting in Perth on 2 –3 September 2004.

It was recommended, and Dr Davies agreed, to amend Table 4A (*Catch histories and fishing vulnerabilities (selectivities) for Patagonian Toothfish, *D. eleginoides*, in Division 58.5.2 from 1995/96-2003/04*) of the paper to separate out the TACs and illegal catch of toothfish for all years from 1995/96 to present and that the different methodologies used to estimate these IUU figures be reflected.

Action arising

Mr Exel questioned the vulnerability of the various age classes of toothfish to IUU fishing and suggested that logbook data from previous IUU vessels be examined. Ms O'Brien indicated that while this information was gathered and used as evidence to prosecute these vessels it may no longer be available. Ms O'Brien agreed to follow up this issue with AFMA's Compliance Section.

Action arising

Mr Exel questioned to the value used for M (natural mortality) in the assessment and whether 0.165 or 0.16 was the correct figure. He pointed to the need to apply a consistent value across fisheries and pointed out that this had implications for the Macquarie Island Toothfish Fishery given that stock levels had been assessed as being just below the level required to open Aurora Trough.

Mr Exel pointed out that Table A3 (*Time series of recruitment (millions of fish) for Patagonian Toothfish, *D. eleginoides*, in Division 58.5.2 based on a mean natural mortality of 0.165 year*) indicated a narrowing of error margins over time as a result of the number of surveys undertaken. He questioned whether there were any potential rewards for increasing the amount of survey effort undertaken. For example if 20% more surveys were undertaken would this equate to a better estimate of the TAC.

Dr Davies indicated that 'Fish Heaven' would be able to provide the answer to this question and that in conjunction with Dr Steve Candy he was preparing a paper for consideration by WG-FSA. This paper will examine new methods for estimating recruits, stratification of survey design, normal survey design compared to a survey every 2 years and the optimal sample size.

Table 1 (*Number of planned and completed trawl sampling stations for each stratum for 2004 survey for juvenile toothfish and mackerel icefish in the vicinity of Heard Island. Toothfish sampled in all stations*) indicated that the data collected from 5 survey hauls had not been

used in the stock assessment analysis. The reasons for not using this data included that some shots had overlapped into daylight and on a number of occasions observers were unaware that research shots were being undertaken and had not collected the required length/frequency data from these hauls. It was agreed that these issues would be raised with observers and crew in future briefings prior to research trips being undertaken.

Dr Haddon questioned the effect of the 1997 recruitment spike on the average for the fishery. Dr Davies agreed to take this question on notice.

Action arising

Dr Haddon indicated that he was impressed with the transparency of the assessment. Dr Davies indicated that this level of detail enabled anyone at WG-FSA to re-do the analysis.

Mr Scott questioned why 7-8 year olds had been discounted from the analysis. Dr Davies indicated that these age classes were not present in last year's survey and that very few were present this year. He indicated that Dick Williams and Andrew Constable considered this to be a seasonal effect resulting from the position of the Antarctic front.

Ms O'Brien pointed out that Dr Tuck was unavailable to attend WG-FSA this year. Dr Haddon indicated that he would be available to take his place for the first week of WG-FSA. Dr Davies indicated that the best days for Dr Haddon to attend would be from 11-15 October 2004. Ms O'Brien agreed to notify Gill Slocum of Dr Haddon's addition to the Australian Delegation list.

Action arising

Dr Davies indicated that he would revise his paper to reflect a number of minor changes suggested by the Group and distribute it prior to the CCAMLR Consultative Forum meeting on 24 September 2004.

Action arising

Mr Scott inquired about the average weight of trawl caught toothfish. Mr Exel indicated that he thought it was 4 - 5 kgs. Mr Scott indicated that on the second trip undertaken by the *Janas* this year the average had been 6.13 kg, which was an increase of around 1 kg over the first trip. He indicated that in greater depth ranges the average had been around 7 kg per fish.

Agenda item 3.1 – Mackerel icefish stock assessment

Dr Davies tabled paper SAFAG 21/2 entitled '*Preliminary assessment of Mackerel Icefish, Champsocephalus gunnari, for the Heard Island region (CCAMLR Division 58.5.2) based on a survey in May 2004*'.

SAFAG agreed that there is an ongoing need to undertake yearly surveys for mackerel icefish. The Group noted that while two year projections are calculated following annual surveys the projections for the second year's TAC have varied significantly following the inclusion of the following year's survey data.

Mr Exel questioned whether alternative harvest options had been examined. Dr Davies indicated that consideration had been given to balancing out the effects of taking a larger 'sure' catch in the first year as opposed to spreading the catch out over two years.

Mr Exel questioned why stocks of mackerel icefish had not recovered to pre-Russian fishing levels. Dr Haddon indicated that they might never recover to these levels even if fishing did not occur and other factors may have affected their recovery.

Dr Davies indicated that Dr Steve Candy was examining how significantly the 95% confidence intervals would be reduced if more survey shots were taken. Dr Candy will also be undertaking a cost benefit analysis of this work. Dr Davies considered that doing an extra 3 days of icefish surveys each year would have a significant effect on the accuracy of the assessment.

A few minor changes were recommended to the paper including adding in historical availability tables to reflect the variability of recruitment.

Action arising

Agenda item 3.2 Skates and rays – stock assessment

The Group noted that the bycatch levels of skates and rays had increased significantly this year as a result of longlining activities. Mr Scott pointed out that a large percentage of the skates taken had been caught in deep water. Good catches of large toothfish had also been taken in these areas.

Mr Exel indicated that if he was to introduce a second longliner into the Fishery next year there is a real danger that the bycatch limit for skates and rays would be exceeded and the Fishery closed. This potential danger is further compounded by anticipated increase in the TAC for icefish next season leading to an expected increase in skates and rays bycatch.

Ms O'Brien indicated that two different species of skates were being taken by the *Janas* and questioned whether the current stock assessment for skates was based solely on the species which had been encountered previously in shallow waters. Dr Davis indicated that the biological parameters used in the current assessment were based on information from the South Georgia Fishery. Ms O'Brien pointed to the high level of uncertainty that surrounded the current assessment and questioned whether alternative/new parameters could be used. Mr Exel also questioned how the current assessment could be improved and whether targeted surveys needed to be undertaken.

Dr Davies agreed to:

- examine the data from the *Janas* and to compare depth ranges and species abundance;
- look at current assessment data in light of new biological data on skates and rays prior to WG-FSA; and
- plot observer data and tag returns.

Action arising

Mr Scott indicated that he was working towards improving the procedures on-board the *Janas* to increase the number of skates released alive. This included the installation of holding tanks which would allow skates to recover prior to release. The Group noted that skates released alive are not counted against the bycatch limit. Mr Exel suggested the use of whale cutter knives which would enable skates to be cut off while still in the water. Mr Scott indicated that while this method was suited to calm waters it had not proved practical in the HIMI Fishery.

Mr Exel indicated that this issue was a 'deal breaker' in determining whether or not to bring a second longliner into the Fishery next year.

Agenda item 4 Proposed extension of the HIMI longline season and daylight setting trials

Dr Robertson attended the meeting to present an early draft of his paper entitled '*Removal of night setting requirements for autoline vessels fishing in Divisions 58.4.3a, 58.4.3b and 58.5.2*' (SAFAG21/3).

Ms O'Brien pointed out that this paper appeared to be based on the Conservation Measures in force for the 2002-03 season and recommended that the paper be updated to reflect the current Conservation Measures. In particular, the fact that daylight setting is already allowed for in Division 58.4.3a and 58.4.3b subject to a line sink rate of 0.3 metre per second being achieved and a bird bycatch limit of three.

Ms O'Brien requested that consultation be undertaken within Australia's NGO community on these issues prior to the paper being submitted to CCAMLR's Working Group on the Incidental Mortality Associated with Fishing (IMAF). She recommended, and Dr Robertson agreed, to table a revised draft of his paper at the upcoming CCAMLR Consultative Forum.

Action arising

Mr Scott pointed out that the proposed changes were consistent with AFMA's legislative objectives and would afford his company significant cost efficiency benefits. He pointed out that there had been no seabird fatalities during the *Janas* longline trials over the past two seasons. He requested that the Group consider the extension of the longline season for 2005 from 14 September to 30 September taking into account the low abundance of white chinned petrels as reflected in Figure 1 of Dr Robertson's paper.

The Group noted that the extension of the 2004 season from 31 August to 14 September mirrored a decision taken by IMAF in relation to the South Georgia toothfish fishery. The Group considered it important that the extension of the HIMI season be considered on its own merits, in particular recognition should be given to:

- the more stringent mitigation measures which are in place in the HIMI Fishery, eg the prohibition on the discharge of offal; and
- different seabird risks exist at HIMI compared to South Georgia.

Dr Robertson indicated that he considered that the level 4 risk assessment currently given to the HIMI Fishery was incorrect and should be downgraded to a level 2 risk area.

Mr Exel requested that, in respect of Figure 1 that the role of the *Austral Leader* and *Southern Champion* in providing this observer data be acknowledged.

Action arising

Ms O'Brien requested that the sink rate of an average 2.5 metres/second for integrated weighted line, as recommended on page 5 of the draft paper, be lowered to minimum of 2.0 metres/second. She pointed out the legal difficulties associated with enforcing an average sink rate.

Dr Davies recommended, and the Group agreed, that the draft paper be reviewed by Dr Croxall, UK, prior to submission to IMAF.

Action arising

Dr Tuck recommended that daily seabird observations be reviewed rather than by month.

Action arising

Macquarie Island

Agenda item 5 – Decision rules for Toothfish assessment and TAC setting

Dr Haddon indicated that as a result of discussions at SAFAG 20 alternative strategies for calculating the biomass of toothfish stock at Macquarie were being considered at SAFAG 20. He questioned the origins of the current decision rule which he believed to be that if the estimated biomass is at 66.5% of the pre-fishing level then the TAC is set at 10% of the available fish. If the biomass is below this level then a research TAC of 40 tonnes is set. He believes that this model is based on simulations carried out by Andrew Constable in 1998.

Dr Haddon considered that the current decision rule is designed to prevent the overfishing of a new stock and not a recovering stock. Therefore, setting the TAC at 10% is likely to result in the stock falling below 66.5% in the following year.

Dr Haddon suggested that Dr Tuck undertake a new MSE and look at alternative models. He pointed to the need to set a target that can be maintained rather than an absolute. It was suggested that the TAC be scaled according to the biomass available in a given year.

Dr Tuck indicated that alternative, and potentially more appropriate, methods of estimating the trawl available percent remaining biomass might push the percentage above the limit required for a commercial TAC. Mr Exel questioned why this work had not been done in the 3 months since SAFAG 20 and why a TAC could not be set. Dr Tuck reported that under Model A (the original model) the current biomass was estimated at 64.9%, however, this estimate is likely to be biased downwards as the model assumes recruitment occurs at the end of each year and that there is zero recruitment throughout the rest of the year. Under Model B recruitment is assumed to be continual and the biomass is estimated above the required limit at 76.1%.

Dr Haddon suggested a third model (Model C) that applied half of natural mortality to the predicted recruits in Model B. This would be more realistic but would reduce the apparent biomass (though in this case not below 66.5%).

Ms O'Brien questioned if it would be possible to set a commercial TAC for Aurora Trough for the current season. That is, given that the current biomass has been estimated under Model B at 76.1% would it be acceptable to set the TAC at a precautionary level of say 5%.

Dr Davies questioned whether the research TAC of 40 tonnes would provide sufficient information on which to base a new assessment. Dr Tuck indicated that under Model A 10% of the biomass would equate to 226 tonnes. He stated that the 40 tonne limit was based on the number of tag returns needed to generate a new estimate and the previous average of 1 tag was recaptured for every tonne of fish taken.

Ms O'Brien suggested that setting the research TAC of 100 tonnes would appear precautionary based on the information available and would provide greater certainty in future estimates. It would also provide Austral with some incentive to return to the Fishery this summer, however, even with the TAC set at this level it would be unlikely that the vessel would generate a profit from the trip.

Last season's take 353 tonnes resulted in 251 tags being recaptured. Over the past 8 years the take of 940 tonnes resulted in 617 tag recaptures, which equates to 1 tag/ 1.52 tonnes. Therefore to recapture 40 tags at this rate approximately 61 tonnes of fish needed to be caught.

Dr Davies indicated that under the current decision rule a commercial TAC for Aurora Trough should not be set. Accordingly, SAFAG agreed to recommend that the research TAC be increased to 60 tonnes to allow for a minimum 40 tags to be recaptured.

Ms O'Brien pointed out that the lack of an appropriate decision rule and biological reference points had the potential to seriously delay the development of the *Macquarie Island Toothfish Fishery Management Plan* which is scheduled to be put into effect by 30 June 2005. She questioned whether Dr Tuck would be available to undertake this work or if somebody else could be engaged to do this work within the required timeframe.

SAFAG recommended that decision rules should not be included in the Plan and that CCAMLR's decision rules for setting the toothfish TAC, as reflected in the HIMI Fishery Management Plan 2002, be adopted for the Macquarie Island Toothfish Fishery.

Dr Haddon agreed to draft an options paper for consideration by SAFAG and SouthMAC at their November 2004 meetings. This paper will examine a range of harvest strategies including:

- the setting of 2 or 1 year TACs – to include industry's perspective;
- a sliding scale of removals based on available biomass;
- adopting 66.5% as the limit reference point;
- setting a constant catch limit for each of the Northern Valleys and Aurora Trough of say 100 or 60 tonnes with a trigger TAC based on achieving an average catch rate of X tonnes/km²;
- setting an average/minimum constant catch; and
- management through limiting the frequency of/number of trips.

Action arising

At their November meetings SAFAG and SouthMAC will be asked to identify their preferred harvest strategies which would then be evaluated through the MSE. Dr Tuck agreed to present a progress report on the evaluation of harvest strategies by February 2005.

Action arising

SAFAG agreed that Dr Sainsbury should be invited to SAFAG/SouthMACs November meetings to discuss the range of alternative harvest strategies.

Action arising

Mr Exel indicated that he would ensure that the data from this summer's trip to Macquarie Island was provided directly to AAD in an effort to avoid the delays that were experienced this year. Dr Tuck agreed to inform SAFAG in February 2005 if he envisaged any problems in finalising the stock assessment in time for SAFAG's April/May 2005 meeting so that additional resources could be identified if needed.

Action arising

Other

Agenda item 6.1 – HIMI Fishery Assessment Plan 2004-05

SAFAG considered a paper prepared by AFMA seeking the Group's input in the 2004-05 Fishery Assessment Plan (FAP) for the HIMI Fishery, in particular:

- the proposed survey design for 2004-05 for trawling and longlining; and
- the possible crediting of longline research undertaken this season and in 2004-05.

Dr Davies recommended that the tagging program be maintained at the current level, however, more effort should be concentrated on tagging smaller fish in the shallow plateau. Mr Exel recommended that tagging responsibilities should continue to be distributed based on the quota held. He agreed to resolve with Mr Scott the details of who would be responsible for tagging in the various areas of the Fishery.

SAFAG acknowledged that 30 days of survey work was scheduled to be undertaken this year, however, due to operational difficulties the anticipated 10 days of summer survey work which was to complement AAD's research cruise had not taken place. It was agreed that these unused days should be recognised under the 2004-05 FAP. As agreed at SAFAG 20 that the *Austral Leader* carried out 2 days survey work using the IYGPT net which were not part of the original research plan for 2003-04. It was agreed that these days should be credited to Austral under next year's plan, therefore, a total of 8 additional days should be carried forward.

Mr Scott indicated that he was not keen to pay Austral to undertake his share of research for the 2004/05 season and would prefer to contribute to the research program with the use of his vessel. He requested that the research *Janas* had undertaken during the current season be assessed and the value of this work be credited under the 2004/05 plan. It was recommended that Dick Williams be asked to evaluate the data from the *Janas* and to assess the time and value of this work so that an appropriate credit (in number of days) could be recommended.

Action arising

SAFAG agreed that the 2004/05 Plan should be agreed at their November 2004 meeting and finalised prior to the commencement of the season on 1 December 2004.

Action arising

Agenda item 6.2 – Collaborative work with the French

This item was not considered due to time constraints.

Agenda item 7 - Next meeting

The next meeting of SAFAG was scheduled for 16 November and the morning of 17 November 2004. A public meeting of SouthMAC and a joint meeting of SAFAG and SouthMAC is proposed for the afternoon of 17 November 2004. SouthMAC will meet on 18 November 2004.

The meeting closed at 4.00pm.