

South Pacific Regional Fisheries Management Organisation

10th Meeting of the Science Working Group

Port Vila, Vanuatu, 19-23 September 2011

SWG-10-01

DRAFT AGENDAS FOR THE SCIENCE WORKING GROUP & SUB-GROUPS

SCIENCE WORKING GROUP: PLENARY

DRAFT AGENDA

The Plenary Meeting of the Science Working Group will review and comment on the reports of the Jack Mackerel and Deepwater Subgroups, deal with overall science issues that span across Sub-Groups, or have not been allocated to Sub-Groups, and provide collated research and management advice to the Preparatory Conference.

1. **Welcome & Introductions**
2. **Adoption of Agenda**
3. **Administrative Arrangements**
 - 3.1. Meeting documents
4. **Nomination of Rapporteurs**
5. **SWG Chairmanship**
6. **Discussion of National Reports**

The obligation to provide 2011 National Reports to the SWG was re-iterated in the 2011 Interim Measures for Pelagic Fisheries adopted in Cali in January 2011. Participants are also required to provide observer data for the 2011 fishing season to the SWG to the maximum extent possible. Reports should be prepared in accordance with the National Report Guidelines adopted by the Negotiations in Lima in May 2009 and should cover the period up to the end of the 2010 calendar year, plus any important information which may be available for the period up to September 2011. Participants will have an opportunity to present key aspects of their reports, and to ask questions related to National Reports tabled by other participants.

7. **Inter-Sessional Work**
 - 7.1. Report from the Interim Secretariat on status of catch & effort data submission

- 7.2. Update by the Interim Secretariat on status of the SPRFMO catch and effort database, and the SPRFMO GIS database

8. Report-Back from the Meeting of the Jack Mackerel Sub-Group

- 8.1. Consideration of the report and summary of the Jack Mackerel Sub-Group meeting

The Chair of the Jack Mackerel Sub-Group will report back on the key conclusions and recommendations of the meeting of the Jack Mackerel Sub-Group. In particular, the JMSG Chair will report back on stock status advice resulting from jack mackerel stock assessments conducted inter-sessionally and during the JMSG meeting. The JMSG will provide a summary of the key assessment results for inclusion in the SWG report under this agenda item. Where necessary, the SWG Plenary may add further comment from a Plenary perspective, after review of the JMSG Report. In addition, the detailed report of the JMSG meeting will be appended to the SWG report in full.

- 8.2. SWG Advice on Jack Mackerel Stock Status

The Request for Scientific Advice annexed to the 2011 Interim Measures for Pelagic Fisheries (Annex 1) require the SWG to provide advice to the 3rd session of the Preparatory Conference on the stock status of jack mackerel, based on updated stock assessments conducted in accordance with that request for advice. The SWG will prepare advice on jack mackerel stock status under this agenda item, based on the results of inter-sessional stock assessments conducted by participants, additional stock assessment runs conducted by the JMSG and the report of the JMSG.

9. Report Back from the Meeting of the Deepwater Sub-Group

The Chair of the Deepwater Sub-Group will report back on the key conclusions and recommendations of the meeting of the Deepwater Sub-Group. The DWWSG will provide a summary of these key results for inclusion in the SWG report under this agenda item. Where necessary, the SWG Plenary may add further comment from a Plenary perspective, after review of the DWWSG Report. In addition, the detailed report of the DWWSG meeting will be appended to the SWG report in full.

10. Future Scientific Work Programme

The 2nd session of the SPRFMO Preparatory Conference requested the SWG to prepare a draft future scientific work programme, taking into consideration the components listed in Annex D to the report of the 2nd Preparatory Conference (attached).

The JMSG will develop a draft future jack mackerel scientific work programme taking into account the key components of the existing stock structure research programme, as well as the additional components listed in Annex D related to jack mackerel stock assessment, management options and reference points, management procedures and harvest control rules and evaluation of by-catches.

The DWWSG will develop a draft future deepwater scientific work programme taking into account the components listed in Annex D related to predictive modelling of VMEs, assessment methods for deepwater species and evaluation of by-catches.

The SWG will merge the jack mackerel and deepwater draft work plans, together with work plan components related to the squid fishery and any other components considered necessary. This work programme is intended to guide the future work of participants and the SWG over the next 5 years.

11. Species and Habitat Profiles

11.1. Revisions to existing species or habitat profiles

12. Other Matters

13. Adoption of SWG Report

14. Meeting Closure

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SCIENCE WORKING GROUP: JACK MACKEREL SUB-GROUP

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In accordance with their interim terms of reference, the Jack Mackerel Sub-Group will deal with all matters related to research and assessment of jack mackerel, including related species caught in jack mackerel fisheries, and provide advice to the SWG Plenary on the status of the stocks, and evaluate conservation and management options, for jack mackerel in the SPRFMO area.

1. Opening of the Meeting

Pending election of a Chair for the JMSG under agenda item 5, the meeting will be opened by the Chair of the SWG.

2. Adoption of Agenda

3. Administrative Arrangements

- 3.1. Meeting arrangements
- 3.2. Meeting documents

4. Nomination of Rapporteurs

5. Chairmanship of the Jack Mackerel Sub-Group

Nominations for Chair of the JMSG will be considered under this agenda item. If no nominations are received, the Sub-Group will agree on interim Chairing arrangements.

6. Report of the Jack Mackerel Otolith Interpretation & Ageing Workshop

Dr Rodolfo Serra will present key conclusions and recommendations from the report of the Jack Mackerel Otolith Interpretation & Ageing Workshop held in Lima, Peru from 4 – 13 July 2011. Implications of the workshop results for jack mackerel stock assessment will be discussed to inform the specification of any additional stock assessment runs to be conducted under agenda item 8.

7. Report on Inter-Sessional Assessment Work by Participants

The Request for Scientific Advice annexed to the 2011 Interim Measures for Pelagic Fisheries (Annex 1) requires participants to inter-sessionally prepare updated assessments of jack mackerel stock status, including: updated age and growth information from the ageing workshop; standardisation of CPUE indices; updating catch, effort, length and age-frequency data; exploration of alternative modelling of natural mortality; the effect of minimum size and mesh limits; and the evaluation of appropriate target and limit reference points for jack mackerel (see Annex 1).

Participants will be expected to circulate scientific papers on the above inter-sessional assessment work at least two weeks before the SWG meeting, and to provide brief presentations on the key results in their papers to the JMSG meeting.

8. Jack Mackerel Stock Assessments – Technical Session

8.1. Updating of data sets for additional stock assessment runs

Together with the SPRFMO Data Manager, participants will prepare any updated data sets required for additional stock assessment runs to be conducted at the meeting. Participants are requested to ensure that they have complied with all of the jack mackerel data submission requirements, and that they bring all updated data to this meeting in a format suitable for input into the stock assessment models.

8.2. Selection and specification of the base-case assessment, and specification of additional stock assessment sensitivity runs to be conducted

Following review of the results of the ageing workshop and inter-sessional assessment work by participants, the JMSG will specify and conduct additional stock assessment runs, sensitivities or supporting analyses considered necessary to prepare the 2011 JMSG report on jack mackerel stock status.

8.3. Conducting of additional stock assessment runs

The additional stock assessment runs specified above will be conducted during the three days of the JMSG meeting.

8.4. Synthesis and summary of key results from all stock assessment runs conducted

Results of all stock assessment runs conducted inter-sessionally or at the meeting will be summarised as a technical Appendix to the JMSG report and used to inform the advice on jack mackerel stock status prepared under agenda item 9.

9. Advice to the Science Working Group on Jack Mackerel Stock Status

The JMSG will prepare advice for presentation to the SWG and Preparatory Conference on the status of the jack mackerel stock in 2011 based on the stock assessments conducted inter-sessionally and under agenda item 8.

10. Jack Mackerel Research Programme

10.1. Inter-Sessional Progress with the Jack Mackerel Stock Structure Research Programme

Members of the Jack Mackerel Research Programme Task Team will be given an opportunity to provide brief overviews of any inter-sessional progress made with projects under the Jack Mackerel Stock Structure Research Programme.

10.2. Future Jack Mackerel Work Programme

The 2nd Preparatory Conference requested the SWG to prepare a draft future SWG work programme, taking into consideration the components listed in Annex D (attached) to the 2nd PrepCon report. The JMSG will be expected to prepare the section of the draft SWG work programme relating to jack mackerel, merging the key components of the existing stock structure research programme, and the suggested jack mackerel components listed in Annex D.

10.3. Identification of short term research and assessment requirements

Short-term intersessional jack mackerel research and assessment activities to be given priority over the coming year will be identified.

11. Revisions to the Jack Mackerel Species Profile

An updated jack mackerel species profile prepared by Dr Glubokov was tabled at the SWG8 JMSG meeting. Discussion of this updated profile was again deferred at the SWG9 meeting. Additional updates may be suggested from the results of the 2010 and 2011 jack mackerel stock assessments and other inter-sessional research work.

12. Other Matters

13. Adoption of Jack-Mackerel Sub-Group Report and Summary

In addition to preparation of a detailed Report for appending to the SWG Plenary Report, the JMSG will be required to prepare a summary of the key conclusions and recommendations of the meeting to insert into the SWG Plenary Report.

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SCIENCE WORKING GROUP: DEEPWATER SUB-GROUP

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In accordance with their interim terms of reference, the Deepwater Sub-Group will deal with all matters related to research and assessment of deepwater species caught in bottom fisheries, including ecologically related species, and provide advice to the SWG Plenary on the status of the stocks, and evaluate conservation and management options, for deepwater species in the SPRFMO area.

1. Opening of the Meeting

The Sub-Group meeting will be opened by Dr Serra, the Chair of the DWSG.

2. Adoption of Agenda

3. Administrative Arrangements

- 3.1. Meeting arrangements
- 3.2. Meeting documents

4. Nomination of Rapporteurs

5. SPRFMO Bottom Fishery Impact Assessment Standard

A revised draft of the SPRFMO Bottom Fishery Impact Assessment Standard will be presented by Dr Ilona Stobutzki, coordinator of the intersessional task team to revise the current draft Standard. Participants will discuss the revised draft with a view to recommending a final draft Standard to the 3rd meeting of the Preparatory Conference.

6. Review of Bottom Fishery Impact Assessments

Any additional or updated bottom fishery impact assessment submitted by participants prior to the meeting will be reviewed against the SPRFMO Benthic Assessment Framework, and against the list of questions in Section 8 of the Report of SWG 4 (Noumea, September 2007).

7. Deepwater Species Assessment and Management

Any papers submitted on options for stock assessment and sustainable management of low-productivity deepwater species will be discussed.

8. Deepwater Research Programme

8.1. Future Deepwater Work Programme

The 2nd Preparatory Conference requested the SWG to prepare a draft future SWG work programme, taking into consideration the components listed in Annex D (attached) to the 2nd PrepCon report. The DWSG will be expected to prepare the section of the draft SWG work programme relating to deepwater fisheries, taking into consideration the suggested deepwater components listed in Annex D.

8.2. Identification of short term research and assessment requirements

Short-term intersessional deepwater research and assessment activities to be given priority over the coming year will be identified.

9. Other Matters

10. Adoption of Deepwater Sub-Group Report and Summary

In addition to preparation of a detailed DWSG Report for appending to the SWG Plenary Report, the DWSG will be required to prepare a summary of the key conclusions and recommendations of the meeting to insert into the SWG Plenary Report.

Annex 1 to the SPRFMO 2011 Interim Measures for Pelagic Fisheries

Request for Scientific Advice

The Second session of the Preparatory Conference for the establishment of the Commission of the South Pacific Regional Fisheries Management Organisation (SPRFMO) acknowledges the important efforts and the work performed by the SWG during 2009 and 2010 to develop the stock assessment of Jack Mackerel and to provide clear scientific advice in the October 2010 SWG report.

The Second session of the Preparatory Conference requests that in 2011 the SWG conduct the following work and provide advice to the Third session of the Preparatory Conference. This work includes further development an update to the stock assessment for *Trachurus* spp, analysis of a range of biological reference points which could be used in management and providing scientific advice on the state of the stock, projections for recovery and the effect of management measures following the points below.

The Second session of the Preparatory Conference recognises that the present request implies a substantial level of work and is dependent on the human resources available and on the level and detail of data submitted by participants.

Specifically

The SWG should further develop and update the 2010 jack mackerel stock assessment, following the recommendations given in the SWG October 2010 report. Where possible and appropriate, the stock assessment should incorporate:

- The most up to date information on ageing and growth rates and associated uncertainties, which should be provided by the ageing workshop to be held in Lima, Peru, in June 2011, and size at maturity;
- Standardized catch-per-unit-effort data (which are used in the model as abundance indices). The standardizations should account for historical changes in vessels, fishing areas and seasons, environmental factors and other relevant factors. This would need to be provided by participants;
- All data available for 2010 and if possible, all data available for 2011 at the time of the assessment.

Further development of the model should consider, if possible:

- The explicit modelling of length composition data;
- Evaluation of possible improvements to existing acoustic abundance indices;
- Sensitivity to alternative plausible levels of natural mortality and to age-variable natural mortality;
- Evaluation of the effect of minimum size limits and minimum fishery specific net mesh sizes.

Regarding biological reference points, the SWG is also requested to:

- Estimate and evaluate the usefulness for management of a range of fishing mortality and biomass reference points. The SWG is requested to provide proposals for target and limit reference points to be used in management of jack mackerel, based on evaluation of the range of alternative reference points.

Based on the requested improvements described above, an update of the assessment in 2011 should be performed, including all information available for 2010 and if possible all data available for 2011 at the

time of the assessment. In particular, the SWG should assess the recent data on recruitment and recruitment indices.

It is emphasized that much of the above work will need to be done inter-sessionally by flag state scientists prior to the next SWG meeting, and results brought to the next SWG meeting for review and incorporation into updated assessments.

Annex D to the Report of the 2nd Session of the SPRFMO PrepCon

Suggested SPRFMO SWG Work Program Components

The Second session of the Preparatory Conference requests the Science Working Group (SWG) to consider the following issues in the development of a draft SWG work program:

Jack mackerel

Stock assessment

- Incorporation of explicit spatial structuring in the Jack Mackerel assessment model, to facilitate evaluation of area specific management measures,
- The effect of seasonal and/or spatial closures of areas, including those with higher concentration of juveniles or adult aggregations (this requires that detailed seasonal/spatial time series are available),
- The effect of environmental conditions on the population dynamics of jack mackerel,
- Alternative population structures and possible management areas (this topic is presently under research).

It is emphasized that explicit incorporation of spatial structuring into assessment models, and investigating of the effects of alternative spatial management approaches and area-specific management measures, will require all the necessary data to be provided at fine spatial resolution, at least at the spatial scale at which spatial management approaches are to be investigated.

For catch and effort data, this will require that all participants submit tow-by-tow data, including fishing position data. For biological data (including catch-at-length, catch-at-age and gonad condition / spawning activity data), this will require that observer and onshore sampling programmes are adequate to provide the necessary biological data at adequate spatial scale for all areas covered by the fisheries. Observer programmes will need to be planned to ensure adequate spatial coverage of all areas. This will likely require that scientific observer coverage levels be increased above 10%.

Management advice in relation to reference points

The SWG is requested to evaluate and provide advice on a range of management options as well as a risk analysis for each option. If possible, management options should include:

- Catch levels likely to achieve particular fishing mortality and/or biomass reference points, within particular time frames,
- Minimum size limits and minimum mesh sizes,
- Closed areas and/or seasons, including those related to concentration of juveniles or spawning aggregations.

If possible, the combined effect of additional measures such as minimum catch sizes, minimum mesh sizes and/or closed areas/seasons should be evaluated.

Management Procedures and Harvest Control Rules

With the view to further developing the link between fisheries management and science, and in order to have a clearer understanding of the stock dynamics of jack mackerel in response to management measures, the SWG is requested to initiate and progress the necessary analyses, assessments and evaluations to support implementation of a Management Procedure for jack mackerel, including development of an appropriate operating model and evaluation of a range of alternative Harvest Control Rules to reach suggested target reference points over an appropriate year range, together with evaluation of associated risks and probabilities.

It is emphasized that development and evaluation of Management Procedures and Harvest Control Rules is an iterative process that will require sequential, repeated and close consultation between scientists, fisheries managers and Commissioners throughout the process.

Evaluation of Composition and Rates of By-Catch

Using available observer and other appropriate data, conduct initial evaluations of the composition and rates of by-catch of non-target, associated and dependant species, both retained and discarded, including impact assessments.

It should be noted that, to enable the above evaluations to be done, participants will need to ensure that data collected by observers includes data on retained and discarded by-catch, as required by the Data Standards for observer data.

Deep-water species

The SWG work plan should include the areas identified in the 2010 DWSG report, including:

- Predictive modelling to evaluate the likelihood of the presence of vulnerable marine ecosystems (VMEs),
- Methods to assess deepwater species and the provision of advice on their stock status and potential management approaches.
- Using available observer and other appropriate data, conduct evaluations of the composition and rates of by-catch of non-target, associated and dependant species, both retained and discarded, including impact assessments.

Squid

The SWG work plan should include the development of an understanding of the squid fishery, including stock status, predation rates on other species, potential management approaches and initial evaluation of by-catches.

Other Components

The SWG may consider other additional compon