

South Pacific Regional Fisheries Management Organisation

Science Working Group

Lima, Peru: 15-19 October 2012

REPORT OF THE 11th SCIENCE WORKING GROUP

1. Welcome & Introductions

The participants were welcomed to the meeting by Ambassador Nicolas Roncagliolo Higuera (Director of Sovereignty, Limits and Antarctic affairs), the Peruvian vice Minister of Fisheries, Mr. Paul Phumpiu Chang and Admiral German Vasquez Solis (President of IMARPE) at the start of proceedings at 09.00.

The Interim Executive Secretary, Dr Robin Allen replied and led the meeting onto the next item.

2. Election of Acting Chair

Dr Allen noted that Dr. Jim Ianelli (USA) had been nominated prior to the meeting by Ad Corten (EU) and sought additional candidates. No additional candidates were proposed and Dr. Ianelli was unanimously elected as SWG Acting Chair.

3. Adoption of Agenda

Dr. Ianelli took charge of the meeting and sought and proposed changes to the Draft Agenda. It was noted that there were no documents provided under item 10, (Revisions to existing species or habitat profiles), and as no participants expressed interest in presenting on this issue, this item was removed from the Agenda. The revised agenda is attached as Annex SWG-01

4. Administrative Arrangements

Administrative arrangements were presented by the Chair, including meeting documentation, explained the proposed schedule of meetings (SWG-11-02) and other administrative arrangements. The list of attendees is attached as Annex SWG-02.

4.1 Meeting documents

The Executive Secretary noted that there was an up-to-date documents list available on the website SWG-11-03 (rev 1).

5. Nomination of Rapporteurs

Three Rapporteurs were appointed Dr Geoff Tingley (New Zealand), Dr Andres Chipollini (Peru) and Dr Erich Diaz (Peru). It was agreed that rapporteurs for the jack mackerel and deepwater subgroups would be appointed at the appropriate times by each group.

6. Discussion of Participant Reports

Reports were provided for this meeting by Australia, Chile, China, Ecuador, Korea, New Zealand, Peru and Chinese Taipei (documents SWG-11-04 to SWG-11-12). Participants made brief presentations of their reports and provided answers and explanations in response to questions. Those participants who did not operate fisheries during 2012 did not submit reports.

The Peruvian delegation presented a diplomatic note concerning various issues in some reports as related to its national maritime jurisdiction. The Chilean delegation presented a diplomatic note in response. The Chilean delegation presented a *note verbal* requesting that Birdlife

amend some of the graphics in their information paper provided to the SWG. The three notes are attached in Annex SWG-05. The Peruvian delegation expressed that the graphs included in the document by Birdlife reflect the ongoing maritime controversy.

7. Future Scientific Work Programme

Agenda Item 9 was introduced to enable development of on-going discussion and development of ideas on future work. The programme will comprise three areas: (i) environment variability patterns at different spatial and temporal scales, (ii) assessment of the main fisheries in the SPRFMO area (jack mackerel, deepwater and squid) and (iii) ecosystem approach to fisheries management. The draft research programme is attached as Annex SWG-06.

The need to prioritize research was identified and linked to the issue of funding arrangements. The Working Group did not have time to prioritise all of the activities described in the research programme. The intention is that the SPRFMO's Scientific Committee will review this programme, prioritise activities and regularly update its research programme.

However, the group considers that for the scientific advice on the jack mackerel fishery, short term progress on the following areas is a high priority:

1) Stock structure studies. Research is in progress under several items. The proposed simulation studies within a Management Strategy Evaluation (MSE) framework will help to fill the gap between uncertainty in stock structure and management measures.

2) Age determination. The proposed work programme on age determination based on exchanging otolith images to develop a standardized otolith reading protocol which is cost-effective and could bring important insights into the current uncertainty. The collaboration of Ecuador and Peru is essential due to the age validation work in the far north area of the jack mackerel distribution. It was suggested that the length frequency analyses that was conducted in Peru be pursued using data from other areas.

3) Acoustic survey standardization. Standardization of survey methods is already achieved in a large part. Some standardization of survey design should be considered, especially for jack mackerel surveys, where the target fish is highly mobile and not necessarily present every year in the same place at the same time. These activities should be developed under the supervision of the ICES FAST working group, for ensuring the highest standard of research.

4) The Working Group recognised that the establishment of a scientific database of current and past research that is relevant to the SPRFMO would be a useful tool for coordinating research and avoiding duplication. The research plans of participants and details of individual projects should be provided to the Scientific Committee at an early stage to facilitate collaboration and enable coordination of research across the region.

Specific scientific data holdings were proposed, including those requiring standardized protocols to record and store information, such as otolith images. The main difficulties in aging are currently related to differences between readers, which could be assisted by a common database of otolith images. Chile offered to coordinate aging, but each member would need to appoint one or more specialists to form a subgroup to deliver the work programme.

It was agreed that some core funding would be the ideal way to enable intersessional working groups and encourage increased cooperative research. The Working Group agreed to provide indicative costs of proposed research to the Commission and to request funding.

The Working Group suggested the following considerations for identifying and prioritizing activities within the research programme. Research activities should include:

- Explicitly linking obligations embodied in the Convention and address advice needs specified by the Commission
- Being cost-effective with the cost of the work in proportion to the fishery's value
- Using the most up-to-date techniques and methods
- Being collaborative, open to involvement by all participants and using the skills, expertise and infrastructure available among them
- Being transparent and open to peer-review
- Attracting financial support from national governments and international funding bodies
- Fostering and building on national research programs

Funding support from the Commission for research is likely to be limited in the short term. In this situation, SPRFMO may need to rely on national governments and other bodies pursuing the activities identified in this research programme. The research programme may be important in helping those bodies secure support for their research activities. The Scientific Committee and SPRFMO Secretariat will have an important role in reviewing research results and coordinating those activities.

The Working Group suggested that the continued collection, processing and analysis of basic fisheries data should be an overriding priority. These data are embodied in the *Standards for the collection, reporting, verification and exchange of data*. They include data on catch levels, fishing effort, vessel details, size composition of catches, bycatch and VMEs at appropriate spatial and temporal resolutions.

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

The Jack Mackerel Sub-Group (JMSG) met during the 11th meeting of the SWG and the full report of that meeting is appended as Annex SWG-03. The main issues dealt with by the JMSG Sub-Group at this meeting were:

- The Participants provided the JMSG with final available datasets required for running the model. Various new input data were presented and discussed. Existing time series that were only updated and had been discussed and agreed at earlier meetings were not further discussed.
- New biological information (weight-at-length and at-age, and maturity-at-age and at-length) and both updated, and newly proposed, indices of abundance were considered. The updated indices were fishery-dependent standardised CPUE time series for different fleets and different fishery locations as well as updated existing time series of fishery-independent acoustic biomass estimates.

- Peru presented a new proposed index of abundance, where an existing fishery-independent acoustic survey-derived biomass time series was corrected for incomplete coverage of the known fish distribution using a model to calculate monthly suitable fish habitat using a suite of environmental variables. This was recognised as an innovative development and in the future, such studies should be prepared in advance so all participants may better judge the acceptability of the approach.
- The JMSG conducted stock assessments and sensitivities for jack mackerel using the Joint Jack Mackerel (JJM) statistical catch-at-age stock assessment model, using updated and new data inputs and indices.
- Analyses exploring different approaches to defining a range of biologically-based reference points were presented and discussed. These analyses suggest that an appropriate target reference point that would probably be around 40% of unfished biomass.
- There was discussion on the range of possible stock structures. Further research is necessary to understand the stock structure and in the meantime assessments will be carried out using the alternatives of a single eastern Pacific stock and separate far north and southern stocks.

The JMSG reviewed inter-session progress with development of projects under the Jack Mackerel Research Programme and made recommendations on future work to progress cooperative research under this programme.

The SWG endorsed the following advice by the Jack Mackerel Sub-Group on jack mackerel stock status in 2012

SWG Advice on Jack Mackerel Stock Status

Relative to stock status, the assessments presented indicate an increasing stock since 2010 but still at very low levels ranging between 8% and 17% of estimated unfished levels.

Projection results under the assumption of recent average recruitment at the levels estimated for the recent period (2000–2012) indicate that fishing mortality should be maintained at or below 2012 levels to improve the likelihood of spawning biomass increasing. This results in catches for 2013 on the order of 441kt or lower. Fishing mortalities in the next 10 years at or below current (2012) levels are projected to have a high probability of resulting in spawning stock increases under most projections.

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

The Deep Water Sub-Group (DWSG) met during the 11th meeting of the SWG and the full report of that meeting is appended as Annex SWG-04. No new Bottom Fishery Impact Assessments were presented at the meeting of the Deepwater Sub-Group. The Sub-Group noted that the Convention on Biological Diversity's process for describing ecologically or biologically significant marine areas (EBSAs) might overlap or be inconsistent with SPRFMO's work on vulnerable marine ecosystems (VMEs). The Sub-Group drafted a description of high priority research tasks for inclusion in the Science Working Group's research programme. These include studies of the biology of target species (e.g. orange roughy), habitat models for predicting the spatial distribution of target species, the estimation of sustainable yields by feature or area, assessment of the impact of fishing on bycatch species and the identification and mapping of potential VMEs. Crucial to these tasks is the provision of catch and fishing effort data at a suitable resolution, e.g. a data resolution of 0.1° (6 minutes) or finer is required for scientific mapping of deepwater fishing activities.

10. Next Meeting

The next meeting will be the first meeting of the Scientific Committee date and locale to be determined. The SWG recommends to the Commission that Jim Ianelli is appointed as Chair of the SC pending his availability.

11. Other Matters

There were no other matters.

12. Adoption of SWG Report

The SWG adopted the report.

13. Meeting Closure

The meeting was closed at 2111 hours on 19 October 2012.

AGENDAS FOR THE SCIENCE WORKING GROUP & SUB-GROUPS

SCIENCE WORKING GROUP: PLENARY

AGENDA

- 1. Welcome & Introductions**
- 2. Election of Acting Chair**
- 3. Adoption of Agenda**
- 4. Administrative Arrangements**
 - 4.1. Meeting documents
- 5. Nomination of Rapporteurs**
- 6. Discussion of National Reports**
- 7. Report-Back from the Meeting of the Jack Mackerel Sub-Group**
 - 7.1. Consideration of the report and summary of the Jack Mackerel Sub-Group meeting
 - 7.2. SWG Advice on Jack Mackerel Stock Status
- 8. Report Back from the Meeting of the Deepwater Sub-Group**
- 9. Future Scientific Work Programme**
- 10. Next Meeting**
- 11. Other Matters**
- 12. Adoption of SWG Report**
- 13. Meeting Closure**

SCIENCE WORKING GROUP: JACK MACKEREL SUB-GROUP

DRAFT AGENDA

- 1. Opening of the Meeting**
- 2. Adoption of Agenda**
- 3. Administrative Arrangements**
 - 3.1. Meeting arrangements
 - 3.2. Meeting documents
- 4. Nomination of Rapporteurs**
- 5. Report on Inter-Sessional Assessment Work by Participants**
- 6. Jack Mackerel Stock Assessments – Technical Session**
 - 6.1. Updating of data sets for additional stock assessment runs
 - 6.2. Conducting of additional stock assessment runs
 - 6.3. Synthesis and summary of key results from all stock assessment runs conducted
- 7. Advice to the Science Working Group on Jack Mackerel Stock Status**
- 8. Jack Mackerel Research Programme**
 - 8.1. Inter-Sessional Progress with the Jack Mackerel Stock Structure Research Programme
 - 8.2. Future Jack Mackerel Work Programme
 - 8.3. Identification of short term research and assessment requirements
- 9. Revisions to the Jack Mackerel Species Profile**
- 10. Other Matters**
- 11. Adoption of Jack-Mackerel Sub-Group Report and Summary**

SCIENCE WORKING GROUP: DEEPWATER SUB-GROUP

DRAFT AGENDA

- 1. Opening of the Meeting**
- 2. Adoption of Agenda**
- 3. Administrative Arrangements**
 - 3.1. Meeting arrangements
 - 3.2. Meeting documents
- 4. Nomination of Rapporteurs**
- 5. Review of Bottom Fishery Impact Assessments**
- 6. Deepwater Species Assessment and Management**
- 7. Report on Eastern Tropical and Temperate Pacific Regional Workshop to Facilitate the Description of Ecologically or Biologically Significant Marine Areas (EBSAS)**
- 8. Deepwater Research Programme**
 - 8.1.** Future Deepwater Work Programme
 - 8.2.** Identification of short term research and assessment requirements
- 9. Other Matters**
- 10. Adoption of Deepwater Sub-Group Report and Summary**

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