

International Consultations on the Establishment of the
South Pacific Regional Fisheries Management Organisation

**Sixth International Meeting on the Establishment of the proposed South
Pacific Regional Fisheries Management Organisation**

**Canberra, ACT, Australia
6 – 10 October 2008**

REPORT

1. The Sixth International Meeting to discuss the establishment of a South Pacific Regional Fisheries Management Organisation was held in Canberra, ACT, Australia 6-10 October 2008. The meeting was chaired by the independent Chair, elected at the first International Meeting, Bill Mansfield.
2. The Meeting adopted Annex A as its agenda.
3. The Chair reported that, as requested by the Fifth International Meeting, he had revised the draft Convention (SP/05/WP1) discussed at that Meeting, and taking into account the comments participants had made both in Guayaquil and following, had circulated a fourth revision of the draft text to participants (SP/06/WP1).
4. Robin Allen, the Executive Secretary of the Interim Secretariat, presented the Report of the Interim Secretariat (SP/06/WP2) to the Meeting (Annex B). The Meeting noted the report, in particular that there is sufficient funding for the operations of the Interim Secretariat until July 2009. The meeting agreed that the future funding of the Interim Secretariat would need to be considered at the next meeting.
5. The Executive Secretary presented a report on participants fishing pelagic stocks in the Area in 2007 (SP/06/WP 3). This report was noted by the Meeting.
6. The Executive Secretary also presented a summary of data received by the Interim Secretariat that had been submitted to the Data and Information Working Group (SPRFMO-VI-DIWG-10). Several participants commented on the report and undertook to provide revised or omitted data. The Meeting agreed that the information in the paper should be presented to succeeding meetings in the same format.

7. Kelly Denit, Chair of the Data and Information Working Group (DIWG) presented the report of the DIWG (Annex C), which had met in Canberra from 29 September to 1 October 2008. The report noted the work done by the DIWG on data standards during the intersessional period, proposed a future work plan for the DIWG, and also noted with concern the lack of detailed catch and effort data submitted to the Interim Secretariat to date. The Meeting adopted the DIWG report and a consolidation of all the SPRFMO data standards for the collection, reporting, verification and exchange of data (Annex D).
8. Andrew Penney, Chair of the Science Working Group (SWG) presented the report of the SWG (Annex E), which had met in Canberra from 29 September to 3 October 2008. Both the Jack Mackerel and Deepwater Subgroups met during the week. The report noted the progress made by the group in its intersessional work, and an intersessional work plan for the SWG. The work of the Jack Mackerel Subgroup resulted in preliminary advice on the current status of the Chilean jack mackerel under various stock structure hypotheses developed by the intersessional Jack Mackerel Workshop. The SWG report also noted that the Interim Secretariat had received data, in varying degrees of completeness, from some participants. The SWG stressed the critical importance for their work of all required data being submitted. The Meeting adopted the SWG report, approved the request for the release of non public domain data to the Jack Mackerel Subgroup for the purposes of stock assessment, and approved the other aspects of the intersessional work plan.
9. Following the reports of both the DIWG and SWG, the Meeting strongly encouraged all participants to submit data in accordance with the data standards adopted at previous meetings.
10. Much of the Meeting's work was carried out in small working-group mode. This enabled a frank and constructive discussion of many of the articles of the draft Convention text and the key underlying issues, and was helpful in drawing the positions of delegations closer together. Some delegations also submitted specific textual proposals, which are available on the SPRFMO website. The Meeting requested the Chair to circulate a further revision of the draft Convention text, taking into account the comments made by delegations on the draft Convention text. The Meeting expressed its commitment to speed the process and to consider different working methods in this regard.
11. The Meeting agreed that the Seventh International Meeting to discuss the establishment of the proposed South Pacific Regional Fisheries Management Organisation would be held in Lima, Peru, from 18 to 22 May 2009, with the DIWG and SWG meeting the week prior (11 to 15 May).

12. The Meeting thanked the Government of Australia for hosting the Meeting.
13. The Meeting was closed at 12:45 pm on 10 October 2008.
14. The Meeting was attended by those representatives who appear in the List of Participants (Annex F).

Annex A

**SIXTH INTERNATIONAL MEETING ON THE ESTABLISHMENT OF A
SOUTH PACIFIC REGIONAL FISHERIES MANAGEMENT ORGANISATION**

Canberra, ACT, Australia, 6–10 October 2008

PROVISIONAL AGENDA

1. Opening of the Meeting.
2. Adoption of the Agenda and meeting arrangements.
3. Reports
 - a. Report from the Executive Secretary of the Interim Secretariat. (SP/06/WP 2)
 - b. Report from the Executive Secretary on pelagic fishing in 2007. (SP/06/WP 3)
 - c. Report from the Science Working Group on its intersessional work.
 - d. Report from the Data and Information Working Group on its intersessional work.
4. Draft South Pacific Regional Fisheries Management Organisation Convention - Revision 4 (SP/06/WP 1).
5. Date and place of next meeting.
6. Other matters.
7. Adoption of the Report.
8. Closing of the Meeting.

Report of the Interim Secretariat

Introduction

The roles of the Interim Secretariat set out in the Reñaca Meeting Report are:

- (a) Data Management - The receipt, compilation, storage and dissemination (where appropriate) of data submitted by the Participants;
- (b) Document Management - The receipt, storage and dissemination of reports and documents submitted by the Participants;
- (c) Meetings - Providing assistance to the relevant host in organising meetings of the Consultations and of subsidiary bodies of the Consultations;
- (d) Website - The management of the contents of the SPRFMO website.

The offices of the Interim Secretariat are in a secure area of ASB House, 101-103 The Terrace, Wellington. [Contact details](#) are given on the SPRFMO web site.

Activities since the fifth meeting

Since March 2008, the Interim Secretariat has been involved in activities in each of the roles originally set out for it.

Various data have been provided by participants in response to the Data collection and sharing section of the [Interim Measures](#) and the Data Standards referred to in that section. The fishing activity data submitted have been in various degrees of aggregation. To date, most are at a lower level of resolution than that specified in the Standards, and it has been possible to maintain them in ad hoc files. A number of papers concerning data standards have been submitted for the consideration of the Data and Information Working Group

Arrangements have been made for building a database management system that will facilitate submission and display of selected data via the website. The first phase of the system is expected to be completed by November 2008. Some features, such as the continued development of a SPRFMO geospatial database of joint bottom trawl footprint, seamounts and VMEs, bathymetry and EEZ boundaries requested by the March 2008 meeting of the Scientific Committee will be implemented in a later phase.

During the period the Interim Secretariat has maintained regular communications with the Participants on routine matters including those relating to data, and to arrangements for the Chilean Jack Mackerel Workshop and the Sixth Round of meetings. The Data Manager participated in the Chilean Jack Mackerel Workshop held in Santiago, Chile during 30-June to 4 July 2008.

The website has been maintained as a vehicle for distribution of information and to facilitate meeting arrangements via its registration system. The current web site depends on an obsolete software version which is no longer being supported by the vendor. Work is being carried out to upgrade the web site using current technology.

Other activities

Office computing network

Following a consultant's report and recommendations, the office computing network has been upgraded to provide improved stability and security.

Liaison with other bodies

The Interim secretariat received and responded to a questionnaire from the United Nations Division of the Law of the Sea soliciting information requested in United Nations General Assembly Resolution 62/177 on Sustainable Fisheries.

Arrangements have been made for the Interim Secretariat to be an observer to the FAO Combined Working Party for Fisheries Statistics and the Fisheries Resources Information System. These organizations, respectively, provide a mechanism to coordinate fishery statistical programmes of regional fishery bodies, and a unified partnership of international organizations and regional fishery bodies collaborating within a formal agreement to report and share high-quality information on the global monitoring and management of marine fishery resources.

Budget

The \$NZ 1 million provided by New Zealand to fund the first year of operation of the Interim Secretariat was only partially spent and the balance carried over in the current financial year. In July 2008, China provided a voluntary contribution of NZ \$26,000 for the work of the Interim Secretariat.

The expenditure for the first year of operation (ending 30 June 2008) and the budget for the year ending 30 June 2009 are shown in the table below.

	New Zealand \$ (\$NZ1=\$US0.70 approximately)	
	Actual expenditure for the year ending 30 June 2008	Expected expenditure for the year ending 30 June 2009
Personnel cost	\$160,409	\$323,000
Information technology	\$1,617	\$60,000
Office occupancy	\$30,459	\$10,000
Plant and equipment	\$2,753	\$10,000
Travel and accommodation	\$36,507	\$90,000
Contracted services	\$33,608	\$93,000
Other operating costs	\$6,913	\$26,000
Building services	\$48,047	\$58,000
TOTAL	\$320,313	\$670,000

There is sufficient funding from the contributions of New Zealand and China to fund the operations of the Interim Secretariat until July 2009.

**Report of the Data and Information Working Group
Canberra, ACT, Australia
29 September -1 October 2008**

1. Opening of the Meeting

The meeting was opened by the Chair, Ms. Kelly Denit (United States).

2. Adoption of Agenda

The Agenda was adopted and is provided as Annex 1.

3. Administrative matters

A list of participants is attached as Annex 2.

3.1. Meeting documents

A list of documents from the meeting is provided as SPRFMO-VI-DIWG-02.

3.2. Meeting arrangements

The Chair provided logistic and administrative information to the participants.

4. Election of Rapporteur

Mr. Aquiles Sepulveda (Chile) was elected rapporteur for the meeting.

5. Intersessional Work Items

5.1. Consolidated Data Standards

At the request of the DIWG, the Interim Secretariat presented a document that consolidated all the SPRFMO data standards for the collection, reporting, verification and exchange of data (SPRFMO-VI-DIWG-04). Participants discussed the deadline for the provision of data for the previous year (January to December) data.

Based on discussions at the SPRFMO meeting in Guayaquil, March 31st was suggested as a deadline for the submission of fishing data to the Secretariat in order to allow preparation of information to be used in future stock assessment work. Several participants expressed concern with reviewing and submitting data from the previous year within three months. A deadline of September 30th was considered too late in the year to allow for use of the data in stock assessments. Therefore, the group decided to establish a deadline of June 30th, except for observer data, which will be provided by September 30th.

The DIWG reached consensus on the consolidated data standards to be recommended to the Plenary session for its consideration and adoption that is attached as Annex 3.

5.2. Draft landing standard

The Interim Secretariat proposed a draft data standard for the collection, reporting, verification and exchange of data for landings including a spreadsheet template with a list of fields for the submission of landings data (SPRFMO-VI-DIWG-05).

Chile also presented a draft proposal on landing standards differentiating landing activities for three types of fishing vessels: reefer vessels, fishing vessels and factory vessels (SPRFMO-VI-DIWG-14). Chile indicated it was necessary to separate the three types given the differences in how each type of vessel participates in the jack mackerel fishery.

There was a significant amount of discussion of the two proposals. Some participants supported the need to separate the types of data to be collected by the different types of fishing vessels while others preferred to see one standard that could apply to all. One issue that was the focus of discussions was the use of reefer vessels, specifically that these vessels often land their catch in non-SPRFMO participant countries.

Though the DIWG could not reach consensus, the Participants agreed to continue to work intersessionally on this issue.

5.3. Draft transshipment standard

Based on the fifth meeting report of the DIWG, the DIWG Chair presented a proposed data standard for the collection, reporting, verification and exchange of data for transshipment (SPRFMO-VI-DIWG-06). In addition, Chile submitted a proposed transshipment data standard (SPRFMO-VI-DIWG-13).

The participants discussed the two proposals and agreed to combine elements of each into the transshipment data standard. A key element of the discussion was

the development and use of a unique code to identify each transshipment activity. The participants concluded that the development of a code was not necessary at this time. The name of the two vessels and the date of the activity were considered adequate to identify a specific activity.

The DIWG reached consensus on the data standard for the collection, reporting, verification and exchange of data for transshipment to be recommended to the Plenary session for its consideration and adoption. The transshipment data standard has been incorporated into the Consolidated Data Standards document.

5.4. Standardized length measurements and precision by species

The participants discussed the type of measurements for length-frequencies to be taken and precision for those measurements by species. It was noted that fork length is the type of measurement that is considered the least biased. Participants noted that for certain species, such as sharks, rays and skates, other measurements such as total length and maximum disk width may be the most appropriate measurement.

Regarding precision, the participants stated that the level of precision will vary by the size the species attains. It was noted that for species which grow larger than 40cm, measurements should be taken to the nearest cm. For species which grow smaller than 40cm, measurements should be taken to the nearest mm.

The participants also agreed that there may be a difference in the type of measurements and the level of precision needed for scientific research. The participants incorporated the above information into the consolidated data standards document to be recommended to the Plenary session for its consideration and adoption.

5.5. Vessel size (tonnage and length) standards

The Interim Secretariat presented a report on vessel size standardization issues (SPRFMO-VI-DIWG-08). The two issues highlighted by the document were the use of the terms gross tonnage (GT) and gross registered tonnage (GRT) to describe vessel tonnage and the type of length measurement to be used to describe vessel length.

Participants recognized there was a difference between the interim measures and the vessel data standard in how vessel tonnage should be described (GT vs. GRT). Participants agreed that the current international standard used by the International Maritime Organization (IMO) is GT. However, it was recognized that for some participants GT is not available. Therefore, the participants agreed to add a field to the vessel data standard and observer data standard that would include a field for both GT and GRT.

Regarding length measurement, participants were not able to agree whether length overall (LOA) or length between perpendiculars (LBP) was the most appropriate measurement to take. The participants agreed that it was critical for participants to provide the type of measurement taken when submitting vessel length information to the Interim Secretariat. Participants agreed to add a field to the vessel data standard and observer data standard that would include a field for the type of length measurement being used.

The participants incorporated the above information into the consolidated data standards document to be recommended to the Plenary session for its consideration and adoption.

6. Recommendations from the Jack Mackerel Workshop

There were two main recommendations written in the Report of the Jack Mackerel Workshop held in Santiago in June 2008 (SPRFMO-VI-SWG-JMSG-02) that were directed to the DIWG.

Recommendation 1: Data for stock assessments of jack mackerel are required at the finest level of detail and resolution stipulated in the Annexes to the SPRFMO Data Standards for the various fishing methods. Participants to the negotiations should be required to submit data on their jack mackerel fisheries at this level of detail and resolution, as required by the Interim Measures and subject to the SPRFMO confidentiality agreement.

The DIWG recognized the need for participants to collect and submit data at the finest level of detail and resolution stipulated in the SPRFMO data standards. The DIWG acknowledged that only Korea has submitted data at this level, though it was recognized that historical data may not be available at this level of resolution. Chile expressed concern regarding provision of this data given domestic regulations.

Recommendation 2: Consideration should be given by Data & Information Working Group and the participants in the negotiations to establish a SPRFMO to amend the definition of public domain data in the SPRFMO Data Standards to provide for release of data aggregated at the level of 1°x1° square, month and gear.

The participants considered the request of the SPRFMO Jack Mackerel workshop and agreed that a change to the definition of public domain data was not necessary. Instead, the DIWG agreed that the Jack Mackerel Sub-Group of the Science Working Group should put forward a request to the Plenary session to release the data needed. This mechanism was agreed within the “Maintenance of confidentiality” section of the “Data Standards for the Collection, Reporting, Verification and Exchange of SPRFMO Data”. Specifically, it states that non-public domain data can be compiled and disseminated in response to a written

request from the collective Parties to the negotiation for the purposes documented by those Parties.

7. Other work items (as time permits) and Development of a new Work Plan

7.1 Consideration of the Report from the Interim Secretariat on specifications of some fields in the data standards

The Interim Secretariat presented a report on specifications of some fields in the data standards (SPRFMO-VI-DIWG-09). There were many elements related to the format for the submission of data highlighted: date/time data, positional data, species codes for recording sensitive benthic species and incidental capture species, type of trawl, school association, type of pots, type of bait used, type of hooks used, and type of leader used.

The participants agreed to standard formats for the submission of date/time data, positional data and type of trawl. The participants did not have enough information to make a decision regarding the remaining fields and asked the Interim Secretariat to further research what other regional fisheries management organizations use in this regard.

The participants incorporated the above information into the consolidated data standards document to be recommended to the Plenary session for its consideration and adoption.

7.2 Data Summary paper

The Interim Secretariat presented an update of data submitted to date (SPRFMO-VI-DIWG-10). Participants thanked the Interim Secretariat for preparing the report. Overall, participants expressed disappointment and concern at the continued lack of data reporting at the level of detail specified in the SPRFMO data standards.

Participants noted that data collected at the resolution of 5x5 degree squares is not adequate for use in stock assessments. It was reiterated that data at the level of detail specified in the SPRFMO data standards needs to be submitted to the Interim Secretariat. Regarding jack mackerel, the participants supported the request of the Jack Mackerel Workshop to have data available at the level of 1X1 degree squares, month and gear.

8. Implementation of the SPRFMO database

8.1. Draft VME (including seamounts) template

The Interim Secretariat presented a discussion paper regarding the Interim Secretariat's VME (including seamounts) data capture and display capabilities (SPRFMO-VI-DIWG-11). Specifically, the Interim Secretariat asked for feedback from participants on the format they expect to use regarding VME data.

Based on the Benthic Assessment Framework that has been agreed, the participants noted that a Geographic Information System (GIS) data set would be best. Regarding the type of information participants would expect to display, examples included maps of VMEs, fishing effort, bathymetric data and other information. The Interim Secretariat was referred to the Benthic Assessment Framework for further detail on possible elements that may be included. Participants expressed their expectation that the Interim Secretariat would be able to produce spreadsheets, GIS layers and maps as outputs.

The Interim Secretariat noted concern regarding the cost of a GIS system. It was stated that the current budget does not contain funding for such a system. The participants agreed that the Plenary session should be made aware that the DIWG considers a GIS capability at the Interim Secretariat very important.

8.2. Database update and submission templates

The Interim Secretariat presented an update on development of the SPRFMO database (SPRFMO-VI-DIWG-12). Participants thanked the Interim Secretariat for their report and encouraged continued progress.

9. DIWG Chairmanship

Kelly Denit (United States) was elected to serve as the Chair for the next meeting of the DIWG.

10. Other Business

11. Adoption of the Report

The report was adopted by consensus.

**Sixth International Meeting
Canberra, ACT, Australia
29 September - 1 October 2008**

**DATA AND INFORMATION WORKING GROUP
AGENDA**

- 1. Opening of the Meeting**
- 2. Adoption of Agenda**
- 3. Administrative Arrangements**
 - 3.1. Meeting documents**
 - 3.2. Meeting arrangements**
- 4. Election of Rapporteur**
- 5. Intersessional Work Items**
 - 5.1. Consolidated Data Standards
 - 5.2. Draft landing standard
 - 5.3. Draft transshipment standard
 - 5.4. Standardized length measurements and precision by species
 - 5.5. Vessel size (tonnage and length) standards
- 6. Recommendations from the jack mackerel workshop**
- 7. Other work items (as time permits) and Development of a new Work Plan**
 - 7.1. Consideration of the Report from Interim Secretariat on specifications of some fields in the data standards
 - 7.2. Data summary paper
- 8. Implementation of the SPRFMO database**
 - 8.1. Draft VME (including seamounts) template
 - 8.2. Database update and submission templates
- 9. DIWG Chairmanship**
- 10. Other Business**

11. Adoption of the Report

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DATA AND INFORMATION WORKING GROUP MEETING

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Annex 3 DIWG

Standards for the collection, reporting, verification and exchange of data

Updated: 1 October 2008

With regard to the fishing vessels flying their flag and fishing for non-highly migratory fishery resources in the Area -

1. Data on fishing activities and the impacts of fishing

Participants are to develop, implement and improve systems to:

- (a) Ensure that data on fishing activities are collected from vessels according to the operational characteristics of each fishing method.
 - (i) For trawling methods, Participants are to collect the data described in annex 1;
 - (ii) For purse seining methods, Participants are to collect the data described in annex 2;
 - (iii) For bottom long lining, methods Participants are to collect the data described in annex 3;
 - (iv) For squid jigging, Participants are to collect the data described in Annex 4.
 - (v) For potting methods, Participants are to collect the data described in Annex 5.
 - (vi) For drop/ dahn lining methods, Participants are to collect the data described in Annex 6.
- (b) Ensure that data to assess the impacts of fishing on non-target and associated or dependant species are collected from vessels.
- (c) Compile data on fishing activities and the impacts of fishing and provide these in a timely manner to the interim Secretariat of the proposed South Pacific Regional Fisheries Management Organisation (SPRFMO). Such data are to be provided in sufficient detail to facilitate effective stock assessment. Participants will provide by the 30th June, their previous (January to December) year's data on fishing activities and the impacts of fishing.

2. Vessel data

Participants are to:

- (a) Establish a national record of vessels authorized to fish in the Area;
- (b) Collect vessel related data for standardizing fleet composition and vessel fishing power and for converting between different measures of effort in the analysis of catch and effort data. Participants will collect the data described in annex 7;
- (c) Compile vessel data and provide them in a timely manner to the interim Secretariat of the proposed SPRFMO. Participants are to provide data on vessels that they have authorized to fish in the following year, at least 3 months prior to the start of that year. Additionally, Participants are to provide data on vessels that they newly authorize to fish during a year, or when authorizations to fish are revoked during a year, within 1 month of granting or revoking such an authorization.

3. Observer Data

(a) Implementation of Observer Programmes

Participants are to develop, implement and improve Observer Programmes to attain the following objectives:

- i) To collect vessel information, effort and catch data for all fisheries and fished species in the Area, including target, by-catch and associated and dependent species.
- ii) To collect biological or other data and information relevant to the management of fishery resources in the Area, as specified in these standards, or as identified from time to time by the Science Working Group or through processes identified by the Commission.
- iii) To collect relevant scientific information related to the implementation of the provisions of the Interim Measures adopted by the Participants to the negotiations for the formation of a South Pacific RFMO.
- iv) To collect representative data, including length-frequency and biological samples, across the Area, distribution of fishing effort, seasons, fishing fleets and fleet types.

(b) Information and Data to be Collected

All national observer programmes operating in the SPRFMO Area should provide the information in Annex 8.

(c) Data Provision

Observer data should be provided to the interim Secretariat of the proposed SPRFMO in a standardised format, to be included in a SPRFMO Observer Database. Specifications and standards for this data submission will be developed by the Interim Secretariat. Until the Interim Secretariat determines a change is needed, observer data will be submitted in Microsoft Excel format.

Participants will provide by the 30th September, their previous (January to December) year's data.

(d) Annual Reporting

All SPRFMO participants should provide annual observer implementation reports, which should include sections covering: observer training, programme design and coverage, type of data collected, and any problems encountered during the year. These reports shall be adequate enough to allow the Data & Information Working Group, the Scientific Working Group or the Commission to evaluate the implementation and effectiveness of observer programmes implemented under this standard.

(e) Maintenance of Confidentiality

The interim Secretariat of the proposed SPRFMO is to compile and disseminate accurate and complete observer data to ensure that the best scientific evidence is available, while maintaining confidentiality where appropriate. In doing so, the Interim Secretariat is to follow the procedures specified in section 8.

4. Vessel Monitoring System data

(a) Implementation of Vessel Monitoring Systems

Participants are to develop, implement and improve systems to:

- (i) Ensure that all of their vessels fishing in the Area are fitted with fully operational automatic location communicator (ALC) reporting back to the flag state.
- (ii) Ensure that ALC on their vessels remain operational, and report in accordance with this standard, at all times and in all areas while operational in the SPRFMO area.
- (iii) Maintain a record of all vessel position information reported while these vessels are operational in the SPRFMO area, such that this information may be used to document vessel activity in the SPRFMO area, and to validate fishing position information provided by those vessels.

(b) Frequency and Accuracy of VMS Position Reports

Participants are to ensure that:

- (i) VMS position reports are reported by each of their vessels:
 - (1) at least once every 2 hours if fishing using benthic or benthopelagic¹ trawling or if operating within 20nm of an EEZ boundary;
 - (2) at least once every four hours in other circumstances.

¹ Benthopelagic trawling is interpreted here to mean trawling with a mid-water net where the net has a likelihood of coming into contact with the seabed at any time during the trawling operation.

- (ii) All VMS Position reports are made in accordance with the specification in paragraph (c) of this standard.
- (iii) Under normal satellite navigation operating conditions, positions derived from the data reported are to be accurate to within 500²m.

(c) Content of VMS Position Reports

Participants are to ensure that all VMS Position Reports made by their vessels include at least the following information:

Category	Data Element	Remarks
Vessel registration	Static unique vessel identifier	For example, country code followed by national vessel registration number
Activity detail	Latitude	Position latitude (decimal degrees, to the nearest 0.01 degree)
Activity detail	Longitude	Position longitude (decimal degrees, to the nearest 0.01 degree)
Message detail	Date	Position date in UTC
Message detail	Time	Position time in UTC

5. Historical data

Participants are to:

- (a) Collate pre-2007 data on fishing activities in the Area and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007, in sufficient detail to facilitate effective stock assessment and in a format as close as is practical to that described in annexes 1 - 6;
- (b) Because of the value of such data for stock assessments - at their discretion collate pre-2007 data on fishing activities by vessels flying their flag and fishing within areas under their national jurisdiction, and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007 in sufficient detail to facilitate effective stock assessment and in a format as close as is practical to that described in annexes 1 - 6;
- (c) Collate pre-2008 vessel data and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007, in a format as close as is practical to that described annex 7.

² 500m should be adequate for scientific purposes but for compliance purposes a greater accuracy may be required.

6. Data verification

Participants are to ensure that fishery data are verified through an appropriate system. Participants are to develop, implement and improve mechanisms for verifying data, such as:

- (a) Position verification through vessel monitoring systems;
- (b) Scientific observer programmes to collect verification data on catch, effort, catch composition (target and non-target), discards and other details of fishing operations;
- (c) Vessel trip, landing and transshipment reports; and
- (d) Port sampling.

7. Data exchange

When Participants provide data to the interim Secretariat of the proposed SPRFMO, they will do so in accordance with the specifications and format described in annex 10 of this document.

8. Maintenance of confidentiality

The interim Secretariat of the proposed SPRFMO is to compile and disseminate accurate and complete statistical data to ensure that the best scientific evidence is available while maintaining confidentiality where appropriate. Specifically the interim Secretariat is to:

- (a) Compile and disseminate on request the following “public domain” data:
 - (i) Data on fishing activities, aggregated by flag state and calendar year
and 5 degree by 5 degree areas, except in those cases where such data describes the activities of less than 3 vessels (in which case a lower resolution will be used);
 - (ii) Data on the number and type of vessels authorized to fish, aggregated
by flag state and calendar year;
- (b) Operate comprehensive and robust processes to maintain the confidentiality of the non-public domain data that Participants provide to it. These processes will be based on the ISO/IEC27002:2005 (updates ISO/IEC 17799:2005) international standard for information security management³. SPRFMO specific data security standards will be developed over time;
- (c) Compile and disseminate to Participants or their designates non-public domain data (being any data not described in 8(a)):

³ www.iso.org/iso/en/prods-services/popstds/informationsecurity.html

- (i) In response to a written request from the collective Parties to the Negotiation, for the purposes documented by those Parties; and
- (ii) In the absence of a written request from the collective Parties to the Negotiation - only with the authorization of the Participant(s) that originally provided that data.

In the case that an interim Secretariat has not been established, the Convener of the Data and Information Working Group will assume the roles of the interim Secretariat with regard to the Maintenance of Confidentiality.

These standards will be reviewed periodically to ensure that they are adequate for the current and foreseeable needs of the proposed SPRFMO.

Annex 1

Standard for trawl fishing activity data

1. Data are to be collected on an un-aggregated (tow by tow) basis.
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Tow start date
 - (f) Tow start time
 - (g) Tow end date
 - (h) Tow end time
 - (i) Tow start position (1/10th degree resolution)
 - (j) Tow end position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Type of trawl, bottom or mid-water
(use appropriate bottom or midwater trawl codes from the standard ISCCFG fishing gear standards attached at Annex 10)
 - (m) Type of trawl: single, double or triple (S, D or T).
 - (n) Height of net opening
 - (o) Width of net opening
 - (p) Gear depth at start of fishing
 - (q) Bottom depth at start of fishing
 - (r) Catch retained on board by species in live weight
 - (s) An estimation of the amount of living marine resources discarded by species if possible
 - (t) Were any marine mammals, seabirds or reptiles caught (yes/no)

Annex 2

Standard for purse seine fishing activity data

1. Data are to be collected on an un-aggregated (set by set) basis.
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Set start position (1/10th degree resolution)
 - (j) Net length
 - (k) Net height
 - (l) Intended target species
 - (m) School association⁴
 - (n) Catch retained on board by species in live weight
 - (o) An estimation of the amount of living marine resources discarded by species if possible
 - (p) Were any marine mammals, seabirds or reptiles caught (yes/no)

⁴ Use for example: "FAD", "debris", "seabirds", "surface", "sonar target", or "other"

Annex 3

Standard for bottom long lining fishing activity data

1. Data are to be collected on an un-aggregated (set by set) basis.
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Set start position (1/10th degree resolution)
 - (j) Set end position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Number of hooks
 - (m) Bottom depth at start of set
 - (n) Catch retained on board by species in live weight
 - (o) An estimation of the amount of living marine resources discarded by species if possible
 - (p) Were any marine mammals, seabirds or reptiles caught (yes/no)

Annex 4

Standard for squid jigging fishing activity data

1. Data are to be collected on a daily basis
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Date of fishing activity
 - (f) Position at start of drift (1/10th degree resolution)
 - (g) Position at end of drift (1/10th degree resolution)
 - (h) Echo Sounder (Yes/No)
 - (i) Number of crew
 - (j) Number of single jig machines
 - (k) Number of double jig machines
 - (l) Number of jigs per line
 - (m) Operating depth
 - (n) Total deck light power (kW)
 - (o) Total hours fished
 - (p) Catch retained on board by species in live weight
 - (q) An estimation of the amount of living marine resources discarded by species if possible
 - (r) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 5

Standard for potting methods fishing activity data

1. Data are to be collected on an un-aggregated (set by set) basis
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Start of set position (1/10th degree resolution)
 - (j) End of set position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Depth at start of set
 - (m) Depth at end of set
 - (n) Type of pots
 - (o) Total number of pots set
 - (p) Type of bait used
 - (q) Catch retained by species in live weight
 - (r) An estimate of the amount of living marine resources discarded by species if possible
 - (s) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 6

Standard for drop/dahn lining fishing activity data

1. Data are to be collected on an un-aggregated (series by series) basis
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Start of set position (1/10th degree resolution)
 - (j) End of set position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Depth at start of set
 - (m) Depth at end of set
 - (n) Total number of hooks in the set
 - (o) Number of hooks lost
 - (p) Type of hooks used
 - (q) Type of leader used
 - (r) Total number of line lifts in the set
 - (s) Type of bait used
 - (t) Catch retained by species in live weight
 - (u) An estimate of the amount of living marine resources discarded by species if possible
 - (v) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 7

Standard for vessel data

1. Data are to be collected on an un-aggregated (vessel by vessel) basis.
2. The following fields of data are to be collected:
 - (a) Current vessel flag
 - (b) Name of vessel
 - (c) Registration number
 - (d) International radio call sign (if any)
 - (e) Lloyd's / IMO number (if allocated)
 - (f) Previous Names (if known)
 - (g) Port of registry
 - (h) Previous flag (if any)
 - (i) Type of vessel
 - (j) Type of fishing method(s)
 - (k) When built
 - (l) Where built
 - (m) Length
 - (n) Length type e.g. "LOA", "LBP"
 - (o) Moulded depth
 - (p) Beam
 - (q) Gross Tonnage – GT (to be provided as the preferred unit of tonnage)
 - (r) Gross register tonnage – GRT –
(to be provided if GT not available; may also be provided in addition to GT)
 - (s) Power of main engine(s)
 - (t) Hold capacity
 - (u) Name of owner(s)
 - (v) Address of owner(s)
 - (w) Name of operator(s)
 - (x) Address of operator(s)

Annex 8

Standard for Observer Data

A. Vessel & Observer Data to be Collected for Each Observer Trip

1. Vessel and observer details are to be recorded only once for each observed trip.

2. The following vessel data are to be collected for each observed trip:
 - a) Current vessel flag.
 - b) Name of vessel.
 - c) Name of the Captain.
 - d) Name of the Fishing Master.
 - e) Registration number.
 - f) International radio call sign (if any).
 - g) Lloyd's / IMO number (if allocated).
 - h) Previous Names (if known).
 - i) Port of registry.
 - j) Previous flag (if any).
 - k) Type of vessel.
 - l) Type of fishing method(s).
 - m) Length (m)
 - n) Length type e.g. "LOA", "LBP"
 - o) Beam (m).
 - p) Gross Tonnage – GT (to be provided as the preferred unit of tonnage)
 - q) Gross register tonnage – GRT
(to be provided if GT not available; may also be provided in addition to GT)
 - r) Power of main engine(s) (kilowatts).
 - s) Hold capacity (cubic metres).
 - t) Record of the equipment on board which may affect fishing power factors (navigational equipment, radar, sonar systems, weather fax or satellite weather receiver, sea-surface temperature image receiver, Doppler current monitor, radio direction finder), where practical.
 - u) Total number of crew (all staff, excluding observers).

3. The following observer data are to be collected for each observed trip:
 - a) Observer's name.
 - b) Observer's organisation.
 - c) Date observer embarked (UTC date).
 - d) Port of embarkation.
 - e) Date observer disembarked (UTC date).
 - f) Port of disembarkation.

B. Catch & Effort Data to be Collected for Trawl Fishing Activity

1. Data are to be collected on an un-aggregated (tow by tow) basis for all observed trawls.
2. The following data are to be collected for each observed trawl tow:
 - a. Tow start date.
 - b. Tow start time (the time gear starts fishing).
 - c. Tow end date.
 - d. Tow end time (the time haul back starts).
 - e. Tow start position (Lat/Lon, 1 minute resolution).
 - f. Tow end position (Lat/Lon, 1 minute resolution).
 - g. Intended target species.
 - h. Type of trawl, bottom or mid-water
(use appropriate bottom or midwater trawl codes from the standard
ISCCFG fishing gear standards attached at Annex 10)
 - i. Type of trawl: single, double or triple (S, D or T).
 - j. Height of net opening.
 - k. Width of net opening.
 - l. Mesh size of the cod-end net (stretched mesh, mm) and mesh type
(diamond, square, etc).
 - m. Gear depth (of footrope) at start of fishing.
 - n. Bottom (seabed) depth at start of fishing.
 - o. Catch of all species retained on board, split by species, in live weight (to the nearest kg).
 - p. Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
 - q. Record of sensitive benthic species in the trawl catch, particularly vulnerable or habitat-forming species such as sponges, sea-fans or corals.
 - r. Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per tow.
 - s. Record any bycatch mitigation measures employed.

C. Catch & Effort Data to be Collected for Purse Seine Fishing Activity

1. Data are to be collected on an un-aggregated (set by set) basis for all observed purse-seine sets.
2. The following data are to be collected for each observed purse-seine set:
 - a) Total search time before this set, since the last set.
 - b) Set start date.
 - c) Set start time (the time gear starts fishing).
 - d) Set end date.
 - e) Set end time (the time haul back starts).
 - f) Set start position (Lat/Lon, 1 minute resolution).
 - g) Net length (m).
 - h) Net height (m).
 - i) Net mesh size (stretched mesh, mm) and mesh type (diamond, square, etc)
 - j) Intended target species.
 - k) Type of school and association (FAD, debris, seabirds, surface, sonar target).
 - l) Catch of all species retained on board, split by species, in live weight (to the nearest kg).
 - m) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
 - n) Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per set.
 - o) Record any bycatch mitigation measures employed.

D. Catch & Effort Data to be Collected for Bottom Long Line Fishing Activity

1. Data are to be collected on an un-aggregated (set by set) basis for all observed longline sets.
2. The following fields of data are to be collected for each set:
 - a) Set start date.
 - b) Set start time.
 - c) Set end date.
 - d) Set end time.
 - e) Set start position (Lat/Lon, 1 minute resolution).
 - f) Set end position (Lat/Lon, 1 minute resolution).
 - g) Intended target species.
 - h) Total length of longline set (km).
 - i) Number of hooks for the set.

- j) Bottom (seabed) depth at start of set.
- k) Number of hooks actually observed during the haul.
- l) Catch of all species retained on board, split by species, in live weight (to the nearest kg).
- m) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
- n) Record of sensitive benthic species in the catch, particularly vulnerable or habitat-forming species such as sponges, sea-fans or corals.
- o) Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per set.
- p) Record any bycatch mitigation measures employed.

E. Length-Frequency Data to Be Collected

Representative and randomly sampled length-frequency data are to be collected for the target species and, time permitting, for other main by-catch species. Length data should be collected and recorded at the most precise level appropriate for the species (cm or mm and whether to the nearest unit or unit below) and the type of measurement used (total length, fork length, or standard length) should also be recorded. If possible, total weight of length-frequency samples should be recorded, or estimated and the method of estimation recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex.

Commercial Sampling Protocol

- i) Fish species other than skates, rays and sharks:
 - fork length should be measured to the nearest cm for fish which attain a maximum length greater than 40cm fork length
 - fork length should be measured to the nearest mm for fish which attain a maximum length less than 40cm fork length;
- ii) Skates and rays
 - maximum disk width should be measured
- iii) Sharks
 - Appropriate length measurement to be used should be selected for each species (see FAO technical report 474 on measuring sharks). As a default, total length should be measured.

Scientific Sampling Protocol

For scientific sampling of species length Measurements may need to be made at a finer resolution than specified above.

F. Biological Sampling to be Conducted

1. The following biological data should be collected for representative samples of the main target species and, time permitting, for other main by-catch species contributing to the catch:
 - a) Species
 - b) Length (mm or cm), with record of the type of length measurement used. Measurement precision and type should be determined on a species by species basis consistent with that defined in Section E above.
 - c) Sex (male, female, immature, unsexed)
 - d) Maturity stage
2. Observers should collect tissue, otolith and/or stomach samples according to pre-determined specific research programmes implemented by the Scientific Working Group or other national scientific research.
3. Observers are to be briefed and provided with written length-frequency and biological sampling protocols, where appropriate, and priorities for the above sampling specific to each observer trip.

G. Data to be Collected on Incidental Captures of seabirds, mammals, and reptiles (turtles)

1. The following data are to be collected for all seabirds, mammals, and reptiles (turtles) caught in fishing operations:
 - a) Species (identified taxonomically as far as possible, or accompanied by photographs if identification is difficult) and size.
 - b) Count of the number caught per tow or set.
 - c) Life status (vigorous, alive, lethargic, dead) upon release.
 - d) If dead, then collect adequate information or samples for onshore identification in accordance with pre-determined sampling protocols. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols.

H. Detection of Fishing in Association with Vulnerable Marine Ecosystems

1. For each observed trawl, the following data are to be collected for all sensitive benthic species caught, particularly vulnerable or habitat-forming species such as sponges, sea fans, or corals:
 - a) Species (identified taxonomically as far as possible, or accompanied by a photograph where identification is difficult).
 - b) An estimate of the quantity (weight (kg) or volume (m³)) of each listed benthic species caught in the tow.
 - c) An overall estimate of the total quantity (weight (kg) or volume (m³)) of all invertebrate benthic species caught in the tow.
 - d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitably preserved for identification on shore.

I. Data to be Collected for all Tag Recoveries

1. The following data are to be collected for all recovered fish, seabird, mammal or reptile tags if the organism is dead, to be retained, or alive:
 - a) Observer name.
 - b) Vessel name.
 - c) Vessel call sign.
 - d) Vessel flag.
 - e) Collect, label (with all details below) and store the actual tags for later return to the tagging agency.
 - f) Species from which tag recovered.
 - g) Tag colour and type (spaghetti, archival).
 - h) Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing) If the organism is alive and to be released, tag information should be collected in accordance with pre-determined sampling protocols.
 - i) Date and time of capture (UTC).
 - j) Location of capture (Lat/Lon, to the nearest 1 minute)
 - k) Animal length / size (cm or mm) with description of what measurement was taken (such as total length, fork length, etc).
Length measurements should be collected according to the criteria defined in Section E above.
 - l) Sex (F=female, M=male, I=indeterminate, D=not examined)
 - m) Whether the tags were found during a period of fishing that was being observed (Y/N)
 - n) Reward information (e.g. name and address where to send reward)

(It is recognised that some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.)

J. Hierarchies for Observer Data Collection

1. Recognising that observers may not be able to collect all of the data described in these standards on each trip, a hierarchy of priorities is to be implemented for collection of observer data. Trip-specific or programme-specific observer task priorities may be developed in response to specific research programme requirements, in which case such priorities should be followed by observers.
2. In the absence of trip- or programme-specific priorities, the following generalised priorities should be followed by observers:
 - a) Fishing Operation Information
 - All vessel and tow / set / effort information.
 - b) Reporting of Catches
 - Record time, weight of catch sampled versus total catch or effort (e.g. number of hooks), and total numbers of each species caught.
 - Identification and counts of seabirds, mammals, reptiles (turtles), sensitive benthic species and vulnerable species.
 - Record numbers or weights of each species retained or discarded.
 - Record instances of depredation, where appropriate.
 - c) Biological Sampling
 - Check for presence of tags.
 - Length-frequency data for target species.
 - Basic biological data (sex, maturity) for target species.
 - Length-frequency data for main by-catch species.
 - Otoliths (and stomach samples, if being collected) for target species.
 - Basic biological data for by-catch species.
 - Biological samples of by-catch species (if being collected)
 - Take photos

3. The reporting of catches and biological sampling procedures should be prioritised among species groups as follows:

Species	Priority (1 highest)
Primary target species (such as jack mackerel, for pelagic fisheries, and orange roughy for demersal fisheries)	1
Seabirds, mammals, and reptiles (turtles)	2
Other species typically within top 5 in the fishery (such as blue mackerel for pelagic fisheries, and oreos and alfonsino for demersal fisheries)	3
All other species	4

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g. number of hooks examined for species composition relative to the number of hooks set) should be explicitly recorded under the guidance of member country observer programmes.

K. Coding Specifications to be Used for Recording Observer Data

1. Unless otherwise specified for specific data types, observer data are to be provided in accordance with the same coding specifications as specified in Annex 9 of the SPRFMO Data Standards.
2. Coordinated Universal Time (UTC) is to be used to describe times.
3. Decimal degrees are to be used to describe locations.
4. The following coding schemes are to be used:
 - a) Species are to be described using the FAO 3 letter species codes.
 - b) Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes.
 - c) Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes.
5. Metric units of measure are to be used, specifically:
 - a) Kilograms are to be used to describe catch weight.
 - b) Metres are to be used to describe height, width, depth, beam or length.
 - c) Cubic metres are to be used to describe volume.
 - d) Kilowatts are to be used to describe engine power.

Annex 9

Standard for Transshipment Data

With regard to the fishing vessels flying their flag and fishing for non-highly migratory fishery resources in the Area-

Participants are to:

1. Collect data on an individual transshipment basis.
2. Collect the following fields of data:

Details of transshipping vessel (delivering)

- a. Name of vessel.
- b. Registration number.
- c. Radio call sign.
- d. Vessel flag state.
- e. IMO number/ Lloyd number (if allocated).
- f. Master of transshipping vessel.

Details of Reefer Vessel (receiving)

- g. Name of vessel.
- h. Registration number.
- i. Radio call sign.
- j. Vessel flag state.
- k. IMO number/ Lloyd number (if allocated).
- l. Master of reefer vessel.

Transshipment operation.

- m. Date and time of commencement of transshipment.
- n. Date and time of completion of transshipment.
- o. Position (nearest 1/10th degree) at commencement of transshipment.
- p. Position (nearest 1/10th degree) at completion of transshipment.
- q. Description of product type by species (e.g. whole, frozen fish in 20 kg cartons).
- r. Number of cartons, net weight (kg) of product, by species.
- s. Total net weight of product transshipped (kg).
- t. Hold numbers in reefer vessel in which product is stowed.
- u. Destination port of reefer vessel.
- v. Arrival date estimate.
- w. Landing date estimate.

Verification (if applicable)

- x. Name of observer
- y. Authority
- z. Address
- aa. Telephone/Fax
- bb. E-mail

Annex 10

Specifications for the exchange of data

1. Coordinated Universal Time (UTC) is to be used to describe times, using the following submission format:

YYYY-MON-DDThh:mm:ss

Where:

YYYY	- represents a 4-digit year e.g. "2007"
MON	- represents a 3-character month abbreviation e.g. "APR"
DD	- represents a 2-digit day e.g. "05"
T	- is a space separator
hh	- represents hours based on the 24hr clock (length = 2 digits) e.g. "16"
mm	- represents minutes (length = 2 digits) e.g. "05"
ss	- represent seconds (length = 2 digits) e.g. "00"

Example

2003-JUL-17T13:10:00 1.10pm (1310h), 17 July 2003

2. Decimal degrees (WGS84) are to be used to describe locations.

The following standard should be used for the submission of latitudinal/longitudinal information:

- Northern latitudes and eastern longitudes should be indicated by the use of [un-signed] positive decimal degree values
- Southern latitudes and western longitudes should be indicated by the use of negative decimal degree values

Latitude	Degrees: Represented as positive (unsigned) or negative numbers from 0 to 89.99 E.g. If value = 83.2, this means 83.2° N E.g. if value = -83.2, this means 83.2° S
Longitude	Degrees: Represented as positive (unsigned) or negative numbers from 0 to 179.99 E.g. If value = 83.2, this means 83.2° E E.g. if value = -83.2, this means 83.2° W

3. The following coding schemes are to be used:

- (a) Species are to be described using the FAO 3 letter species codes⁵
- (b) Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes⁶
- (c) Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes⁷

4. Metric units of measure are to be used, specifically:

- a. Kilograms are to be used to describe catch weight
- b. Metres are to be used to describe height, width, depth, beam or length
- c. Cubic metres are to be used to describe volume
- d. Kilowatts are to be used to describe engine power

⁵ www.fao.org/fi/statist/fisoft/asfis/asfis.asp

⁶ <http://www.fao.org/fishery/cwp/handbook/M> - see "Annex M I"

⁷ <http://www.fao.org/fishery/cwp/handbook/L> -see "Annex L.II"

ANNEX 11 ISSCFG Codes

INTERNATIONAL STANDARD STATISTICAL CLASSIFICATION OF FISHING GEAR (ISSCFG) (29 July 1980)

Gear Categories Abbreviation Code	Standard Abbreviations	ISSCFG
SURROUNDING NETS		01.0.0
With purse lines (purse seines)	PS	01.1.0
- one boat operated purse seines	PS1	01.1.1
- two boats operated purse seines	PS2	01.1.2
Without purse lines (lampara)	LA	01.2.0
SEINE NETS		02.0.0
Beach seines	SB	02.1.0
Boat or vessel seines	SV	02.2.0
- Danish seines	SDN	02.2.1
- Scottish seines	SSC	02.2.2
- pair seines	SPR	02.2.3
Seine nets (not specified)	SX	02.9.0
TRAWLS		03.0.0
Bottom trawls		03.1.0
- beam trawls	TBB	03.1.1
- otter trawls ⁸	OTB	03.1.2
- pair trawls	PTB	03.1.3
- nephrops trawls	TBN	03.1.4
- shrimp trawls	TBS	03.1.5
- bottom trawls (not specified)	TB	03.1.9
Midwater trawls	03.2.0	
- otter trawls ¹	OTM	03.2.1
- pair trawls	PTM	03.2.2
- shrimp trawls	TMS	03.2.3
- midwater trawls (not specified)	TM	03.2.9
Otter twin trawls	OTT	03.3.0
Otter trawls (not specified)	OT	03.4.9
Pair trawls (not specified)	PT	03.5.9
Other trawls (not specified)	TX	03.9.0

⁸ Fisheries agencies may indicate side and stern bottom, and side and stern midwater trawls, as OTB-1 and OTB-2, and OTM-1 and OTM-2, respectively

DREDGES		04.0.0
Boat dredges	DRB	04.1.0
Hand dredges	DRH	04.2.0
LIFT NETS	05.0.0	
Portable lift nets	LNP	05.1.0
Boat-operated lift nets	LNB	05.2.0
Shore-operated stationary lift nets	LNS	05.3.0
Lift nets (not specified)	LN	05.9.0
FALLING GEAR		06.0.0
Cast nets	FCN	06.1.0
Falling gear (not specified)	FG	06.9.0
GILLNETS AND ENTANGLING NETS		07.0.0
Set gillnets (anchored)	GNS	07.1.0
Driftnets	GND	07.2.0
Encircling gillnets	GNC	07.3.0
Fixed gillnets (on stakes)	GNF	07.4.0
Trammel nets	GTR	07.5.0
Combined gillnets-trammel nets	GTN	07.6.0
Gillnets and entangling nets (not specified)	GEN	07.9.0
Gillnets (not specified)	GN	07.9.1
TRAPS		08.0.0
Stationary uncovered pound nets	FPN	08.1.0
Pots	FPO	08.2.0
Fyke nets	FYK	08.3.0
Stow nets	FSN	08.4.0
Barriers, fences, weirs, etc.	FWR	08.5.0
Aerial traps	FAR	08.6.0
Traps (not specified)	FIX	08.9.0
HOOKS AND LINES		09.0.0
Handlines and pole-lines (hand-operated) ⁹	LHP	09.1.0
Handlines and pole-lines (mechanized) ¹⁰	LHM	09.2.0
Set longlines	LLS	09.3.0
Drifting longlines	LLD	09.4.0
Longlines (not specified)	LL	09.5.0
Trolling lines	LTL	09.6.0
Hooks and lines (not specified)	LX	09.9.0

⁹ Including jigging lines

¹⁰ Code LDV for dory-operated line gears will be maintained for historical data purposes

GRAPPLING AND WOUNDING		10.0.0
Harpoons	HAR	10.1.0
HARVESTING MACHINES		11.0.0
Pumps	HMP	11.1.0
Mechanized dredges	HMD	11.2.0
Harvesting machines (not specified)	HMX	11.9.0
MISCELLANEOUS GEAR¹¹	MIS	20.0.0
RECREATIONAL FISHING GEAR	RG	25.0.0
GEAR NOT KNOWN OR NOT SPECIFIED	NK	99.0.0

¹¹ This item includes: hand and landing nets, drive-in-nets, gathering by hand with simple hand implements with or without diving equipment, poisons and explosives, trained animals, electrical fishing

ANNEX D

Standards for the collection, reporting, verification and exchange of data

6 October 2008

With regard to the fishing vessels flying their flag and fishing for non-highly migratory fishery resources in the Area -

1. Data on fishing activities and the impacts of fishing

Participants are to develop, implement and improve systems to:

- (d) Ensure that data on fishing activities are collected from vessels according to the operational characteristics of each fishing method.
 - (i) For trawling methods, Participants are to collect the data described in annex 1;
 - (ii) For purse seining methods, Participants are to collect the data described in annex 2;
 - (iii) For bottom long lining, methods Participants are to collect the data described in annex 3;
 - (iv) For squid jigging, Participants are to collect the data described in Annex 4.
 - (v) For potting methods, Participants are to collect the data described in Annex 5.
 - (vi) For drop/ dahn lining methods, Participants are to collect the data described in Annex 6.
- (e) Ensure that data to assess the impacts of fishing on non-target and associated or dependant species are collected from vessels.
- (f) Compile data on fishing activities and the impacts of fishing and provide these in a timely manner to the interim Secretariat of the proposed South Pacific Regional Fisheries Management Organisation (SPRFMO). Such data are to be provided in sufficient detail to facilitate effective stock assessment. Participants will provide by the 30th June, their previous (January to December) year's data on fishing activities and the impacts of fishing.

2. Vessel data

Participants are to:

- (e) Establish a national record of vessels authorized to fish in the Area;
- (f) Collect vessel related data for standardizing fleet composition and vessel fishing power and for converting between different measures of effort in the analysis of catch and effort data. Participants will collect the data described in annex 7;
- (g) Compile vessel data and provide them in a timely manner to the interim Secretariat of the proposed SPRFMO. Participants are to provide data on vessels that they have authorized to fish in the following year, at least 3 months prior to the start of that year. Additionally, Participants are to provide data on vessels that they newly authorize to fish during a year, or when authorizations to fish are revoked during a year, within 1 month of granting or revoking such an authorization.

3. Observer Data

(b) Implementation of Observer Programmes

Participants are to develop, implement and improve Observer Programmes to attain the following objectives:

- i) To collect vessel information, effort and catch data for all fisheries and fished species in the Area, including target, by-catch and associated and dependent species.
- ii) To collect biological or other data and information relevant to the management of fishery resources in the Area, as specified in these standards, or as identified from time to time by the Science Working Group or through processes identified by the Commission.
- iii) To collect relevant scientific information related to the implementation of the provisions of the Interim Measures adopted by the Participants to the negotiations for the formation of a South Pacific RFMO.
- iv) To collect representative data, including length-frequency and biological samples, across the Area, distribution of fishing effort, seasons, fishing fleets and fleet types.

(b) Information and Data to be Collected

All national observer programmes operating in the SPRFMO Area should provide the information in Annex 8.

(c) Data Provision

Observer data should be provided to the interim Secretariat of the proposed SPRFMO in a standardised format, to be included in a SPRFMO Observer Database. Specifications and standards for this data submission will be developed by the Interim Secretariat. Until the Interim Secretariat determines a change is needed, observer data will be submitted in Microsoft Excel format.

Participants will provide by the 30th September, their previous (January to December) year's data.

(h) Annual Reporting

All SPRFMO participants should provide annual observer implementation reports, which should include sections covering: observer training, programme design and coverage, type of data collected, and any problems encountered during the year. These reports shall be adequate enough to allow the Data & Information Working Group, the Scientific Working Group or the Commission to evaluate the implementation and effectiveness of observer programmes implemented under this standard.

(e) Maintenance of Confidentiality

The interim Secretariat of the proposed SPRFMO is to compile and disseminate accurate and complete observer data to ensure that the best scientific evidence is available, while maintaining confidentiality where appropriate. In doing so, the Interim Secretariat is to follow the procedures specified in section 8.

4. Vessel Monitoring System data

(a) Implementation of Vessel Monitoring Systems

Participants are to develop, implement and improve systems to:

- (i) Ensure that all of their vessels fishing in the Area are fitted with fully operational automatic location communicator (ALC) reporting back to the flag state.
- (ii) Ensure that ALC on their vessels remain operational, and report in accordance with this standard, at all times and in all areas while operational in the SPRFMO area.
- (iii) Maintain a record of all vessel position information reported while these vessels are operational in the SPRFMO area, such that this information may be used to document vessel activity in the SPRFMO area, and to validate fishing position information provided by those vessels.

(b) Frequency and Accuracy of VMS Position Reports

Participants are to ensure that:

- (i) VMS position reports are reported by each of their vessels:
 - (1) at least once every 2 hours if fishing using benthic or benthopelagic¹² trawling or if operating within 20nm of an EEZ boundary;
 - (2) at least once every four hours in other circumstances.

¹² Benthopelagic trawling is interpreted here to mean trawling with a mid-water net where the net has a likelihood of coming into contact with the seabed at any time during the trawling operation.

- (ii) All VMS Position reports are made in accordance with the specification in paragraph (c) of this standard.
- (iii) Under normal satellite navigation operating conditions, positions derived from the data reported are to be accurate to within 500¹³m.

(c) Content of VMS Position Reports

Participants are to ensure that all VMS Position Reports made by their vessels include at least the following information:

Category	Data Element	Remarks
Vessel registration	Static unique vessel identifier	For example, country code followed by national vessel registration number
Activity detail	Latitude	Position latitude (decimal degrees, to the nearest 0.01 degree)
Activity detail	Longitude	Position longitude (decimal degrees, to the nearest 0.01 degree)
Message detail	Date	Position date in UTC
Message detail	Time	Position time in UTC

5. Historical data

Participants are to:

- (d) Collate pre-2007 data on fishing activities in the Area and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007, in sufficient detail to facilitate effective stock assessment and in a format as close as is practical to that described in annexes 1 - 6;
- (e) Because of the value of such data for stock assessments - at their discretion collate pre-2007 data on fishing activities by vessels flying their flag and fishing within areas under their national jurisdiction, and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007 in sufficient detail to facilitate effective stock assessment and in a format as close as is practical to that described in annexes 1 - 6;
- (f) Collate pre-2008 vessel data and provide these to the interim Secretariat of the proposed SPRFMO by 30th September 2007, in a format as close as is practical to that described annex 7.

¹³ 500m should be adequate for scientific purposes but for compliance purposes a greater accuracy may be required.

6. Data verification

Participants are to ensure that fishery data are verified through an appropriate system. Participants are to develop, implement and improve mechanisms for verifying data, such as:

- (e) Position verification through vessel monitoring systems;
- (f) Scientific observer programmes to collect verification data on catch, effort, catch composition (target and non-target), discards and other details of fishing operations;
- (g) Vessel trip, landing and transshipment reports; and
- (h) Port sampling.

7. Data exchange

When Participants provide data to the interim Secretariat of the proposed SPRFMO, they will do so in accordance with the specifications and format described in annex 10 of this document.

8. Maintenance of confidentiality

The interim Secretariat of the proposed SPRFMO is to compile and disseminate accurate and complete statistical data to ensure that the best scientific evidence is available while maintaining confidentiality where appropriate. Specifically the interim Secretariat is to:

- (d) Compile and disseminate on request the following “public domain” data:
 - (i) Data on fishing activities, aggregated by flag state and calendar year
and 5 degree by 5 degree areas, except in those cases where such data describes the activities of less than 3 vessels (in which case a lower resolution will be used);
 - (ii) Data on the number and type of vessels authorized to fish, aggregated
by flag state and calendar year;
- (e) Operate comprehensive and robust processes to maintain the confidentiality of the non-public domain data that Participants provide to it. These processes will be based on the ISO/IEC27002:2005 (updates ISO/IEC 17799:2005) international standard for information security management¹⁴. SPRFMO specific data security standards will be developed over time;
- (f) Compile and disseminate to Participants or their designates non-public domain data (being any data not described in 8(a)):

¹⁴ www.iso.org/iso/en/prods-services/popstds/informationsecurity.html

- (i) In response to a written request from the collective Parties to the Negotiation, for the purposes documented by those Parties; and
- (ii) In the absence of a written request from the collective Parties to the Negotiation - only with the authorization of the Participant(s) that originally provided that data.

In the case that an interim Secretariat has not been established, the Convener of the Data and Information Working Group will assume the roles of the interim Secretariat with regard to the Maintenance of Confidentiality.

These standards will be reviewed periodically to ensure that they are adequate for the current and foreseeable needs of the proposed SPRFMO.

Annex 1

Standard for trawl fishing activity data

3. Data are to be collected on an un-aggregated (tow by tow) basis.
4. The following fields of data are to be collected:
 - (u) Vessel flag
 - (v) Vessel name
 - (w) Vessel call sign
 - (x) Registration number of vessel
 - (y) Tow start date
 - (z) Tow start time
 - (aa) Tow end date
 - (bb) Tow end time
 - (cc) Tow start position (1/10th degree resolution)
 - (dd) Tow end position (1/10th degree resolution)
 - (ee) Intended target species
 - (ff) Type of trawl, bottom or mid-water
(use appropriate bottom or midwater trawl codes from the standard
ISCCFG fishing
gear standards attached at Annex 10)
 - (gg) Type of trawl: single, double or triple (S, D or T).
 - (hh) Height of net opening
 - (ii) Width of net opening
 - (jj) Gear depth at start of fishing
 - (kk) Bottom depth at start of fishing
 - (ll) Catch retained on board by species in live weight
 - (mm) An estimation of the amount of living marine resources discarded
by species if possible
 - (nn) Were any marine mammals, seabirds or reptiles caught (yes/no)

Annex 2

Standard for purse seine fishing activity data

3. Data are to be collected on an un-aggregated (set by set) basis.
4. The following fields of data are to be collected:
 - (q) Vessel flag
 - (r) Vessel name
 - (s) Vessel call sign
 - (t) Registration number of vessel
 - (u) Set start date
 - (v) Set start time
 - (w) Set end date
 - (x) Set end time
 - (y) Set start position (1/10th degree resolution)
 - (z) Net length
 - (aa) Net height
 - (bb) Intended target species
 - (cc) School association¹⁵
 - (dd) Catch retained on board by species in live weight
 - (ee) An estimation of the amount of living marine resources discarded by species if possible
 - (ff) Were any marine mammals, seabirds or reptiles caught (yes/no)

¹⁵ Use for example: "FAD", "debris", "seabirds", "surface", "sonar target", or "other"

Annex 3

Standard for bottom long lining fishing activity data

1. Data are to be collected on an un-aggregated (set by set) basis.
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Set start position (1/10th degree resolution)
 - (j) Set end position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Number of hooks
 - (m) Bottom depth at start of set
 - (n) Catch retained on board by species in live weight
 - (o) An estimation of the amount of living marine resources discarded by species if possible
 - (p) Were any marine mammals, seabirds or reptiles caught (yes/no)

Annex 4

Standard for squid jigging fishing activity data

3. Data are to be collected on a daily basis
4. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Date of fishing activity
 - (f) Position at start of drift (1/10th degree resolution)
 - (g) Position at end of drift (1/10th degree resolution)
 - (h) Echo Sounder (Yes/No)
 - (i) Number of crew
 - (j) Number of single jig machines
 - (k) Number of double jig machines
 - (l) Number of jigs per line
 - (m) Operating depth
 - (n) Total deck light power (kW)
 - (o) Total hours fished
 - (p) Catch retained on board by species in live weight
 - (q) An estimation of the amount of living marine resources discarded by species if possible
 - (r) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 5

Standard for potting methods fishing activity data

3. Data are to be collected on an un-aggregated (set by set) basis
4. The following fields of data are to be collected:
 - (t) Vessel flag
 - (u) Vessel name
 - (v) Vessel call sign
 - (w) Registration number of vessel
 - (x) Set start date
 - (y) Set start time
 - (z) Set end date
 - (aa) Set end time
 - (bb) Start of set position (1/10th degree resolution)
 - (cc) End of set position (1/10th degree resolution)
 - (dd) Intended target species
 - (ee) Depth at start of set
 - (ff) Depth at end of set
 - (gg) Type of pots
 - (hh) Total number of pots set
 - (ii) Type of bait used
 - (jj) Catch retained by species in live weight
 - (kk) An estimate of the amount of living marine resources discarded by species if possible
 - (ll) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 6

Standard for drop/dahn lining fishing activity data

1. Data are to be collected on an un-aggregated (series by series) basis
2. The following fields of data are to be collected:
 - (a) Vessel flag
 - (b) Vessel name
 - (c) Vessel call sign
 - (d) Registration number of vessel
 - (e) Set start date
 - (f) Set start time
 - (g) Set end date
 - (h) Set end time
 - (i) Start of set position (1/10th degree resolution)
 - (j) End of set position (1/10th degree resolution)
 - (k) Intended target species
 - (l) Depth at start of set
 - (m) Depth at end of set
 - (n) Total number of hooks in the set
 - (o) Number of hooks lost
 - (p) Type of hooks used
 - (q) Type of leader used
 - (r) Total number of line lifts in the set
 - (s) Type of bait used
 - (t) Catch retained by species in live weight
 - (u) An estimate of the amount of living marine resources discarded by species if possible
 - (v) Were any marine mammals, seabirds or reptiles caught (Yes/No)

Annex 7

Standard for vessel data

3. Data are to be collected on an un-aggregated (vessel by vessel) basis.
4. The following fields of data are to be collected:
 - (a) Current vessel flag
 - (b) Name of vessel
 - (c) Registration number
 - (d) International radio call sign (if any)
 - (e) Lloyd's / IMO number (if allocated)
 - (f) Previous Names (if known)
 - (g) Port of registry
 - (h) Previous flag (if any)
 - (i) Type of vessel
 - (j) Type of fishing method(s)
 - (k) When built
 - (l) Where built
 - (m) Length
 - (n) Length type e.g. "LOA", "LBP"
 - (o) Moulded depth
 - (p) Beam
 - (q) Gross Tonnage – GT (to be provided as the preferred unit of tonnage)
 - (r) Gross register tonnage – GRT –
(to be provided if GT not available; may also be provided in addition to GT)
 - (s) Power of main engine(s)
 - (t) Hold capacity
 - (u) Name of owner(s)
 - (v) Address of owner(s)
 - (w) Name of operator(s)
 - (x) Address of operator(s)

Annex 8

Standard for Observer Data

A. Vessel & Observer Data to be Collected for Each Observer Trip

4. Vessel and observer details are to be recorded only once for each observed trip.

5. The following vessel data are to be collected for each observed trip:
 - a) Current vessel flag.
 - b) Name of vessel.
 - c) Name of the Captain.
 - d) Name of the Fishing Master.
 - e) Registration number.
 - f) International radio call sign (if any).
 - g) Lloyd's / IMO number (if allocated).
 - h) Previous Names (if known).
 - i) Port of registry.
 - j) Previous flag (if any).
 - k) Type of vessel.
 - l) Type of fishing method(s).
 - m) Length (m)
 - n) Length type e.g. "LOA", "LBP"
 - o) Beam (m).
 - p) Gross Tonnage – GT (to be provided as the preferred unit of tonnage)
 - q) Gross register tonnage – GRT
(to be provided if GT not available; may also be provided in addition to GT)
 - r) Power of main engine(s) (kilowatts).
 - s) Hold capacity (cubic metres).
 - t) Record of the equipment on board which may affect fishing power factors (navigational equipment, radar, sonar systems, weather fax or satellite weather receiver, sea-surface temperature image receiver, Doppler current monitor, radio direction finder), where practical.
 - u) Total number of crew (all staff, excluding observers).

6. The following observer data are to be collected for each observed trip:
 - a) Observer's name.
 - b) Observer's organisation.
 - c) Date observer embarked (UTC date).
 - d) Port of embarkation.
 - e) Date observer disembarked (UTC date).
 - f) Port of disembarkation.

B. Catch & Effort Data to be Collected for Trawl Fishing Activity

1. Data are to be collected on an un-aggregated (tow by tow) basis for all observed trawls.
2. The following data are to be collected for each observed trawl tow:
 - t. Tow start date.
 - u. Tow start time (the time gear starts fishing).
 - v. Tow end date.
 - w. Tow end time (the time haul back starts).
 - x. Tow start position (Lat/Lon, 1 minute resolution).
 - y. Tow end position (Lat/Lon, 1 minute resolution).
 - z. Intended target species.
 - aa. Type of trawl, bottom or mid-water
(use appropriate bottom or midwater trawl codes from the standard
ISCCFG fishing gear standards attached at Annex 10)
 - bb. Type of trawl: single, double or triple (S, D or T).
 - cc. Height of net opening.
 - dd. Width of net opening.
 - ee. Mesh size of the cod-end net (stretched mesh, mm) and mesh type (diamond, square, etc).
 - ff. Gear depth (of footrope) at start of fishing.
 - gg. Bottom (seabed) depth at start of fishing.
 - hh. Catch of all species retained on board, split by species, in live weight (to the nearest kg).
 - ii. Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
 - jj. Record of sensitive benthic species in the trawl catch, particularly vulnerable or habitat-forming species such as sponges, sea-fans or corals.
 - kk. Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per tow.
 - ll. Record any bycatch mitigation measures employed.

C. Catch & Effort Data to be Collected for Purse Seine Fishing Activity

3. Data are to be collected on an un-aggregated (set by set) basis for all observed purse-seine sets.
4. The following data are to be collected for each observed purse-seine set:
 - a) Total search time before this set, since the last set.
 - b) Set start date.
 - c) Set start time (the time gear starts fishing).
 - d) Set end date.
 - e) Set end time (the time haul back starts).
 - f) Set start position (Lat/Lon, 1 minute resolution).
 - g) Net length (m).
 - h) Net height (m).
 - i) Net mesh size (stretched mesh, mm) and mesh type (diamond, square, etc)
 - j) Intended target species.
 - k) Type of school and association (FAD, debris, seabirds, surface, sonar target).
 - l) Catch of all species retained on board, split by species, in live weight (to the nearest kg).
 - m) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
 - n) Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per set.
 - o) Record any bycatch mitigation measures employed.

D. Catch & Effort Data to be Collected for Bottom Long Line Fishing Activity

1. Data are to be collected on an un-aggregated (set by set) basis for all observed longline sets.
2. The following fields of data are to be collected for each set:
 - a) Set start date.
 - q) Set start time.
 - r) Set end date.
 - s) Set end time.
 - t) Set start position (Lat/Lon, 1 minute resolution).
 - u) Set end position (Lat/Lon, 1 minute resolution).
 - v) Intended target species.
 - w) Total length of longline set (km).
 - x) Number of hooks for the set.

- y) Bottom (seabed) depth at start of set.
- z) Number of hooks actually observed during the haul.
- aa) Catch of all species retained on board, split by species, in live weight (to the nearest kg).
- bb) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
- cc) Record of sensitive benthic species in the catch, particularly vulnerable or habitat-forming species such as sponges, sea-fans or corals.
- dd) Estimate of the amount (weight or volume) of remaining marine resources discards, split to the lowest known taxon, unless the species is less than 100 kg per set.
- ee) Record any bycatch mitigation measures employed.

E. Length-Frequency Data to Be Collected

Representative and randomly sampled length-frequency data are to be collected for the target species and, time permitting, for other main by-catch species. Length data should be collected and recorded at the most precise level appropriate for the species (cm or mm and whether to the nearest unit or unit below) and the type of measurement used (total length, fork length, or standard length) should also be recorded. If possible, total weight of length-frequency samples should be recorded, or estimated and the method of estimation recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex.

Commercial Sampling Protocol

- i) Fish species other than skates, rays and sharks:
 - fork length should be measured to the nearest cm for fish which attain a maximum length greater than 40cm fork length
 - fork length should be measured to the nearest mm for fish which attain a maximum length less than 40cm fork length;
- ii) Skates and rays
 - maximum disk width should be measured
- iii) Sharks
 - Appropriate length measurement to be used should be selected for each species (see FAO technical report 474 on measuring sharks). As a default, total length should be measured.

Scientific Sampling Protocol

For scientific sampling of species length Measurements may need to be made at a finer resolution than specified above.

F. Biological Sampling to be Conducted

4. The following biological data should be collected for representative samples of the main target species and, time permitting, for other main by-catch species contributing to the catch:
 - a) Species
 - b) Length (mm or cm), with record of the type of length measurement used. Measurement precision and type should be determined on a species by species basis consistent with that defined in Section E above.
 - c) Sex (male, female, immature, unsexed)
 - d) Maturity stage
5. Observers should collect tissue, otolith and/or stomach samples according to pre-determined specific research programmes implemented by the Scientific Working Group or other national scientific research.
6. Observers are to be briefed and provided with written length-frequency and biological sampling protocols, where appropriate, and priorities for the above sampling specific to each observer trip.

G. Data to be Collected on Incidental Captures of seabirds, mammals, and reptiles (turtles)

2. The following data are to be collected for all seabirds, mammals, and reptiles (turtles) caught in fishing operations:
 - a) Species (identified taxonomically as far as possible, or accompanied by photographs if identification is difficult) and size.
 - b) Count of the number caught per tow or set.
 - c) Life status (vigorous, alive, lethargic, dead) upon release.
 - d) If dead, then collect adequate information or samples for onshore identification in accordance with pre-determined sampling protocols. Where this is not possible, observers may be required to collect sub-samples of identifying parts, as specified in biological sampling protocols.

H. Detection of Fishing in Association with Vulnerable Marine Ecosystems

2. For each observed trawl, the following data are to be collected for all sensitive benthic species caught, particularly vulnerable or habitat-forming species such as sponges, sea fans, or corals:
 - a) Species (identified taxonomically as far as possible, or accompanied by a photograph where identification is difficult).
 - b) An estimate of the quantity (weight (kg) or volume (m³)) of each listed benthic species caught in the tow.
 - c) An overall estimate of the total quantity (weight (kg) or volume (m³)) of all invertebrate benthic species caught in the tow.
 - d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitably preserved for identification on shore.

I. Data to be Collected for all Tag Recoveries

2. The following data are to be collected for all recovered fish, seabird, mammal or reptile tags if the organism is dead, to be retained, or alive:
 - a) Observer name.
 - b) Vessel name.
 - c) Vessel call sign.
 - d) Vessel flag.
 - e) Collect, label (with all details below) and store the actual tags for later return to the tagging agency.
 - f) Species from which tag recovered.
 - g) Tag colour and type (spaghetti, archival).
 - h) Tag numbers (The tag number is to be provided for all tags when multiple tags were attached to one fish. If only one tag was recorded, a statement is required that specifies whether or not the other tag was missing) If the organism is alive and to be released, tag information should be collected in accordance with pre-determined sampling protocols.
 - i) Date and time of capture (UTC).
 - j) Location of capture (Lat/Lon, to the nearest 1 minute)
 - k) Animal length / size (cm or mm) with description of what measurement was taken (such as total length, fork length, etc).
Length measurements should be collected according to the criteria defined in Section E above.
 - l) Sex (F=female, M=male, I=indeterminate, D=not examined)
 - m) Whether the tags were found during a period of fishing that was being observed (Y/N)
 - n) Reward information (e.g. name and address where to send reward)

(It is recognised that some of the data recorded here duplicates data that already exists in the previous categories of information. This is necessary because tag recovery information may be sent separately to other observer data.)

J. Hierarchies for Observer Data Collection

4. Recognising that observers may not be able to collect all of the data described in these standards on each trip, a hierarchy of priorities is to be implemented for collection of observer data. Trip-specific or programme-specific observer task priorities may be developed in response to specific research programme requirements, in which case such priorities should be followed by observers.
5. In the absence of trip- or programme-specific priorities, the following generalised priorities should be followed by observers:
 - d) Fishing Operation Information
 - All vessel and tow / set / effort information.
 - e) Reporting of Catches
 - Record time, weight of catch sampled versus total catch or effort (e.g. number of hooks), and total numbers of each species caught.
 - Identification and counts of seabirds, mammals, reptiles (turtles), sensitive benthic species and vulnerable species.
 - Record numbers or weights of each species retained or discarded.
 - Record instances of depredation, where appropriate.
 - f) Biological Sampling
 - Check for presence of tags.
 - Length-frequency data for target species.
 - Basic biological data (sex, maturity) for target species.
 - Length-frequency data for main by-catch species.
 - Otoliths (and stomach samples, if being collected) for target species.
 - Basic biological data for by-catch species.
 - Biological samples of by-catch species (if being collected)
 - Take photos

6. The reporting of catches and biological sampling procedures should be prioritised among species groups as follows:

Species	Priority (1 highest)
Primary target species (such as jack mackerel, for pelagic fisheries, and orange roughy for demersal fisheries)	1
Seabirds, mammals, and reptiles (turtles)	2
Other species typically within top 5 in the fishery (such as blue mackerel for pelagic fisheries, and oreos and alfonsino for demersal fisheries)	3
All other species	4

The allocation of observer effort among these activities will depend on the type of operation and setting. The size of sub-samples relative to unobserved quantities (e.g. number of hooks examined for species composition relative to the number of hooks set) should be explicitly recorded under the guidance of member country observer programmes.

K. Coding Specifications to be Used for Recording Observer Data

6. Unless otherwise specified for specific data types, observer data are to be provided in accordance with the same coding specifications as specified in Annex 9 of the SPRFMO Data Standards.
7. Coordinated Universal Time (UTC) is to be used to describe times.
8. Decimal degrees are to be used to describe locations.
9. The following coding schemes are to be used:
- Species are to be described using the FAO 3 letter species codes.
 - Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes.
 - Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes.
10. Metric units of measure are to be used, specifically:
- Kilograms are to be used to describe catch weight.
 - Metres are to be used to describe height, width, depth, beam or length.
 - Cubic metres are to be used to describe volume.
 - Kilowatts are to be used to describe engine power.

Annex 9

Specifications for the exchange of data

5. Coordinated Universal Time (UTC) is to be used to describe times, using the following submission format:

YYYY-MON-DDThh:mm:ss

Where:

YYYY	- represents a 4-digit year e.g. "2007"
MON	- represents a 3-character month abbreviation e.g. "APR"
DD	- represents a 2-digit day e.g. "05"
T	- is a space separator
hh	- represents hours based on the 24hr clock (length = 2 digits) e.g. "16"
mm	- represents minutes (length = 2 digits) e.g. "05"
ss	- represent seconds (length = 2 digits) e.g. "00"

Example

2003-JUL-17T13:10:00 1.10pm (1310h), 17 July 2003

6. Decimal degrees (WGS84) are to be used to describe locations.

The following standard should be used for the submission of latitudinal/longitudinal information:

- Northern latitudes and eastern longitudes should be indicated by the use of [un-signed] positive decimal degree values
- Southern latitudes and western longitudes should be indicated by the use of negative decimal degree values

Latitude	Degrees: Represented as positive (unsigned) or negative numbers from 0 to 89.99 E.g. If value = 83.2, this means 83.2° N E.g. if value = -83.2, this means 83.2° S
Longitude	Degrees: Represented as positive (unsigned) or negative numbers from 0 to 179.99 E.g. If value = 83.2, this means 83.2° E E.g. if value = -83.2, this means 83.2° W

7. The following coding schemes are to be used:

- (a) Species are to be described using the FAO 3 letter species codes¹⁶
- (b) Fishing methods are to be described using the International Standard Classification of Fishing Gear (ISSCFG - 29 July 1980) codes¹⁷
- (c) Types of fishing vessel are to be described using the International Standard Classification of Fishery Vessels (ISSCFV) codes¹⁸

8. Metric units of measure are to be used, specifically:

- a. Kilograms are to be used to describe catch weight
- b. Metres are to be used to describe height, width, depth, beam or length
- c. Cubic metres are to be used to describe volume
- d. Kilowatts are to be used to describe engine power

¹⁶ www.fao.org/fi/statist/fisoft/asfis/asfis.asp

¹⁷ <http://www.fao.org/fishery/cwp/handbook/M> - see "Annex M I"

¹⁸ <http://www.fao.org/fishery/cwp/handbook/L> -see "Annex L.II"

ANNEX 10 ISSCFG Codes

INTERNATIONAL STANDARD STATISTICAL CLASSIFICATION OF FISHING GEAR (ISSCFG) (29 July 1980)

Gear Categories Abbreviation Code	Standard Abbreviations	ISSCFG
SURROUNDING NETS		01.0.0
With purse lines (purse seines)	PS	01.1.0
- one boat operated purse seines	PS1	01.1.1
- two boats operated purse seines	PS2	01.1.2
Without purse lines (lampara)	LA	01.2.0
SEINE NETS		02.0.0
Beach seines	SB	02.1.0
Boat or vessel seines	SV	02.2.0
- Danish seines	SDN	02.2.1
- Scottish seines	SSC	02.2.2
- pair seines	SPR	02.2.3
Seine nets (not specified)	SX	02.9.0
TRAWLS		03.0.0
Bottom trawls		03.1.0
- beam trawls	TBB	03.1.1
- otter trawls ¹⁹	OTB	03.1.2
- pair trawls	PTB	03.1.3
- nephrops trawls	TBN	03.1.4
- shrimp trawls	TBS	03.1.5
- bottom trawls (not specified)	TB	03.1.9
Midwater trawls	03.2.0	
- otter trawls ¹	OTM	03.2.1
- pair trawls	PTM	03.2.2
- shrimp trawls	TMS	03.2.3
- midwater trawls (not specified)	TM	03.2.9
Otter twin trawls	OTT	03.3.0
Otter trawls (not specified)	OT	03.4.9
Pair trawls (not specified)	PT	03.5.9
Other trawls (not specified)	TX	03.9.0

¹⁹ Fisheries agencies may indicate side and stern bottom, and side and stern midwater trawls, as OTB-1 and OTB-2, and OTM-1 and OTM-2, respectively

DREDGES		04.0.0
Boat dredges	DRB	04.1.0
Hand dredges	DRH	04.2.0
LIFT NETS	05.0.0	
Portable lift nets	LNP	05.1.0
Boat-operated lift nets	LNB	05.2.0
Shore-operated stationary lift nets	LNS	05.3.0
Lift nets (not specified)	LN	05.9.0
FALLING GEAR		06.0.0
Cast nets	FCN	06.1.0
Falling gear (not specified)	FG	06.9.0
GILLNETS AND ENTANGLING NETS		07.0.0
Set gillnets (anchored)	GNS	07.1.0
Driftnets	GND	07.2.0
Encircling gillnets	GNC	07.3.0
Fixed gillnets (on stakes)	GNF	07.4.0
Trammel nets	GTR	07.5.0
Combined gillnets-trammel nets	GTN	07.6.0
Gillnets and entangling nets (not specified)	GEN	07.9.0
Gillnets (not specified)	GN	07.9.1
TRAPS		08.0.0
Stationary uncovered pound nets	FPN	08.1.0
Pots	FPO	08.2.0
Fyke nets	FYK	08.3.0
Stow nets	FSN	08.4.0
Barriers, fences, weirs, etc.	FWR	08.5.0
Aerial traps	FAR	08.6.0
Traps (not specified)	FIX	08.9.0
HOOKS AND LINES		09.0.0
Handlines and pole-lines (hand-operated) ²⁰	LHP	09.1.0
Handlines and pole-lines (mechanized) ²¹	LHM	09.2.0
Set longlines	LLS	09.3.0
Drifting longlines	LLD	09.4.0
Longlines (not specified)	LL	09.5.0
Trolling lines	LTL	09.6.0
Hooks and lines (not specified)	LX	09.9.0

²⁰ Including jigging lines

²¹ Code LDV for dory-operated line gears will be maintained for historical data purposes

GRAPPLING AND WOUNDING		10.0.0
Harpoons	HAR	10.1.0
HARVESTING MACHINES		11.0.0
Pumps	HMP	11.1.0
Mechanized dredges	HMD	11.2.0
Harvesting machines (not specified)	HMX	11.9.0
MISCELLANEOUS GEAR²²	MIS	20.0.0
RECREATIONAL FISHING GEAR	RG	25.0.0
GEAR NOT KNOWN OR NOT SPECIFIED	NK	99.0.0

²² This item includes: hand and landing nets, drive-in-nets, gathering by hand with simple hand implements with or without diving equipment, poisons and explosives, trained animals, electrical fishing

REPORT OF THE SCIENCE WORKING GROUP

Canberra, Australia

29 September – 3 October 2008

1. Welcome & Introductions

The sixth meeting of the SPRFMO Science Working Group was opened by the Chair, Andrew Penney of New Zealand.

2. Status of Science Working Group Sub-Groups

Following an inter-sessional email exchange regarding the agendas and respective status of the SWG, Jack Mackerel Sub-Group and (still to be convened) Deepwater Sub-Group, the Chair requested views from participants regarding the respective status and agendas of the SWG and Sub-Groups. Some participants expressed concern that continued inclusion of deepwater agenda items on the agenda of the SWG, while jack mackerel agenda items were all referred to the Jack Mackerel Sub-Group, gave the impression that jack mackerel issues were being accorded a lower status.

Options considered included placing all jack mackerel agenda items back on the SWG agenda and not convening the Jack Mackerel Sub-Group, or convening the Deepwater Sub-Group to deal with all deepwater issues, nominating some interim Chair for this group. Participants finally agreed that:

- Meetings of both the Jack Mackerel and Deepwater Sub-Groups should be convened. This would require nomination of an interim Chair for this meeting of the DWSG.
- All agenda items related to deepwater issues should be removed from the agenda of the SWG and referred to the DWSG meeting.
- Both Sub-Groups would report back under specific items on the SWG agenda, and provide summaries of their key conclusions and recommendations for direct incorporation into the SWG report. The SWG Plenary would then have the opportunity to comment further on the work of both sub-groups. In addition, the full reports of both sub-groups would be appended to the SWG report.

3. Adoption of Agenda

Following revision of the SWG agenda to remove items referred to the Deepwater Sub-Group for discussion, the revised SWG agenda was adopted (Annex 1).

4. Administrative Arrangements

4.1 Meeting documents

No meeting documents were specifically tabled for consideration by the SWG Plenary. All submitted SWG documents were allocated either to the Jack Mackerel or Deepwater Sub-Groups.

4.2 Meeting arrangements

Administrative arrangements for the meeting were explained by the Executive Secretary, Dr Robin Allen. A list of participants is attached as Annex 2.

5. Nomination of Rapporteurs

The Chair offered to rapporteur the meeting of the SWG Plenary.

6. Inter-Sessional Work

6.1 Report from the Interim Secretariat on status of catch & effort data submission

A report on status of catch and effort data submission (document SPRFMO-VI-DIWG-10) was prepared by Susie Iball, Data Manager of the SPRFMO Interim Secretariat, and discussed by the Data & Information Working Group.

The SWG re-emphasized the importance of submission of catch, effort and VME encounter data by all participants, in accordance with the SPRFMO data standards, and at a resolution appropriate for evaluation of stock status and the impact of fisheries on VMEs.

6.2 Update by the Interim Secretariat on status of the SPRFMO bottom fishing footprint maps, and the SPRFMO GIS database

The Executive Secretary provided a brief report back on the status of the SPRFMO bottom fishing footprint maps and development of the SPRFMO GIS database. So far only New Zealand had submitted a footprint map for high seas bottom trawling activities over the reference years 2002 - 2006. The DWSG noted that Chile had produced a footprint map for their bottom fishing activities over that period (see document SPRFMO-VI-SWG-04), and Chile was requested to submit this map to the Secretariat for incorporation into the SPRFMO bottom fishing footprint maps. All participants were requested to prepare any outstanding footprint maps for their vessels bottom fishing in the SPRFMO area over the years 2002 - 2006 and submit these to the Secretariat as a matter of urgency.

The Executive Secretary reported that incorporation of GIS capabilities into the SPRFMO database would be conducted as a second stage, after development of

database facilities for catch and effort data. This second stage would probably start early in 2009. However, participants should note that no funding had been budgeted yet for purchase of any GIS software. The Executive Secretary requested participants to provide feedback on their preferences and requirements for display or output of GIS information. The SWG noted that a draft submission template had been proposed for footprint data, but that standards had not yet been developed for collection or submission of VME data.

The SWG Chair and Executive Secretary were requested to compile a list of questions to pose to participants regarding their requirements and preferences regarding input, output and display of geographic information.

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

The chair reminded delegates of the role of the group in providing advice on the status of pelagic stocks as requested in the Interim Measures. Dr Rodolfo Serra (Chile) offered to act as rapporteur for the meeting.

Report on the Jack Mackerel Stock Structure and Assessment Workshop

Over 50 participants attended the workshop and 24 papers were presented. The complete report of the workshop is provided as SPRFMO-VI-SWG-JMSG-02.

The workshop developed four working hypotheses on stock structure for jack mackerel. These are to become the main focus of the future stock structure research programme.

The workshop also recognised the value of evaluating the status of jack mackerel stocks using the three modelling approaches considered at the workshop.

An inventory of data available for future stock assessments was compiled at the workshop, and the data needed for conducting assessments under different stock structure scenarios were also identified.

A draft stock structure research programme was presented to the workshop and endorsed.

Jack Mackerel Stock Structure Research Programme

The JMSG endorsed the proposal from the Stock Structure and Assessment Workshop for a steering committee to be formed to oversee planning and implementation of the Jack Mackerel Stock Structure Research Programme.

The steering committee would be responsible for reviewing and revising the programme budget, planning of the proposed workshop on sampling protocols and analysis methods, preparation of a programme timetable, and better coordination of relevant existing research activities among participants in the Research Programme. The steering committee should also review scope of the proposed research programme once the level of support has been determined.

It was agreed that an initial workshop to develop detailed protocols and methods for the collection, distribution and analysis of samples would be critical to the success of the proposed research programme.

Jack Mackerel Stock Assessment and Modelling Approaches

The data that are needed to be compiled for assessments under each of the stock hypotheses has been identified in the report of the Stock Structure and Assessment Workshop

A special assessment workshop was proposed to review and use all the available data and to conduct assessments on jack mackerel. There have been three different modelling approaches used on jack mackerel and the merits of all three should continue to be explored.

Concern was expressed that all the data needed to undertake assessments and address the working stock structure hypotheses have either not yet been submitted to the Interim Secretariat or is not available at the resolution needed to undertake stock assessments.

The JMSG therefore requests that the collective Parties to the Negotiation, as provided for under the agreed Maintenance of Confidentiality provisions (Section 8.(c) (i) of the 'Standards For The Collection, Reporting, Verification And Exchange Of Data'), provide a written request to the Interim Secretariat to compile the non-public domain data on jack mackerel that it currently holds, or may receive until the time of the assessment, and make it available to the JMSG for the purposes of conducting an assessment of the status of jack mackerel stocks.

Provision of Advice to the Science Working Group on the Status of Jack Mackerel in 2009

Chile expressed its concern that recent estimates of spawning biomass provided evidence of a high risk to the condition of the straddling Chilean-high seas stock and to the sustainability of the fishery. The spawning biomass for the area covered by the Chilean assessment (under stock structure hypothesis 3) was estimated to be between 4.1 and 4.6 million tonnes and to be between 24% and 27% of unfished levels. Chile requested that advice to this effect be conveyed to the forthcoming meeting of Participants to the Negotiations.

Peru provided a brief statement about the management of jack mackerel in Peru and indicated that the results of its intensive research and assessment of the jack mackerel stock (under stock structure hypothesis 1) have indicated that the stock was currently underexploited.

Russia reiterated assessment results presented at the Stock Structure and Assessment Workshop. According to the Russian assessment of the high seas biomass of jack mackerel in the south Pacific (under stock structure hypothesis 4) in the area of available international catch data is relatively stable with the average of about 7 million tonnes.

It was agreed that it will be necessary to hold a preliminary workshop to develop and document an assessment protocol followed by the actual stock assessment workshop early in 2009. The results of these workshops would be incorporated into the advice to be provided by the JMSG in 2009. It was suggested again that as much of the work as possible should be conducted by email or other methods.

Preliminary advice from the JMSG on the current status of the jack mackerel

At the SWG meeting in Guayaquil, some participants expressed concern about the status of the Chilean jack mackerel stock and the increased risk to the stock from increases in fishing capacity. Some participants of the JMSG in October 2008 note the continuing declining trend in the jack mackerel spawning biomass and recruitment levels as reported in the Chilean stock assessment tabled at the recent Stock Structure and Assessment Workshop, and the reported increased catch of jack mackerel on the high seas, and consider that the situation represents a further increase in the risk to the stock. Some members of the JMSG urge states that participate in the jack mackerel fishery in the area covered by the Chilean assessment to restrict their catches to a level consistent with sustainable utilization of this resource.

However, depending on which stock structure hypothesis is assumed to be correct, the exploitation rate of high seas jack mackerel, straddling Chilean jack mackerel stock, and the Peruvian jack mackerel stock could be different.

This needs to be investigated using the various stock assessment models proposed.

Revisions to the Jack Mackerel Species Profile

Comment on the revised jack mackerel species profile will be received inter-sessionally and the consolidated revised version considered at the next meeting of the JMSG.

The SWG noted that the interim measures for pelagic fisheries require the SWG to provide advice in 2009 on the status of all pelagic stocks, and not just on status of jack mackerel. However, the SWG emphasized that the work required to assess the status of jack mackerel would probably consume all available scientific resources of the participants concerned during 2009, and that simultaneous assessment of other pelagic stocks would not be feasible. Participants noted that currently available information and data do not suggest any cause for concern regarding the current status of pelagic stocks other than jack mackerel, and suggested that the assessment of other stocks be deferred until after 2009.

The SWG noted that, in terms of the current terms of reference of the Jack Mackerel Sub-Group, assessments for other pelagic species would be referred to the JMSG in future.

The Report of the meeting is attached as Annex 3.

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

The SWG Deepwater Sub-Group, which was proposed originally at the SWG meeting in Reñaca, met for the first time during this meeting. Having still received no nominations for Chair of this Sub-Group, Andrew Penney was asked to Chair the DWSG for this meeting in his capacity as SWG Chair. The DWSG is still seeking nominations to the Chair for the remainder of the inter-sessional period.

The draft SPRFMO Bottom Fishery Impact Assessment Standard being developed by New Zealand had been held back, awaiting the outcome of the FAO Technical Consultation to develop International Guidelines for the Management of Deep-Sea Fisheries on the High Seas. The DWSG noted that the SPRFMO assessment standard needs to be compatible with the FAO Guidelines. The current SPRFMO interim measures for bottom fisheries are already compatible with a number of the FAO guidelines relating to scope, preparation and review of assessments, monitoring of interactions and prevention of significant adverse impacts on VMEs.

The DWSG identified a number other key paragraphs in the FAO guidelines relating to definitions of VMEs and significant adverse impacts, fisheries data resolution, content and review of fisheries impact assessments, management and conservation tools and assessment and management of low productivity species with which the SPRFMO assessment guidelines will have to be compatible. These paragraphs are listed in detail in the DWSG report. DWSG participants agreed to review and provide the draft bottom fishery impact assessment standard inter-sessionally, once the draft has been circulated, in preparation for further discussion at the next meeting.

No bottom fishery impact assessments were submitted by participants for review by the SWG. Chile tabled a paper outlining some aspects of their current approach to implementing the SPRFMO interim measures on bottom fisheries which did include some assessment aspects, including a bottom fishing footprint map. The DWSG noted that assessment standards should be flexible enough to take account of fisheries at different stages of development, and that different approaches might be required for fisheries with very different histories, levels of fishing effort or availability of information.

The Report of the meeting is attached as Annex 4.

9. Species and Habitat Profiles

9.1 Review of new species or habitat profiles

No new species or habitat profiles were tabled for discussion.

9.2 Revisions to existing profiles

The SWG noted that a revised draft jack mackerel species profile had been tabled for consideration by the Jack mackerel Sub-Group by the Chair, Sandy Morison. The JMSG had agreed to consider the proposed revisions inter-sessionally with a view to finalising and adopting a revised profile at the next meeting.

Chile indicated their intention of proposing revisions to a number of the existing species profiles for deepwater species such as alfonsino, cardinalfish and orange roughy.

9.3 Prioritisation and process for further species profile development

The SWG re-iterated the recommendation of the previous meeting to complete the draft species profile for oreos, and to develop profiles for pelagic armourhead, toothfish and wreckfish. New Zealand confirmed that they were working to complete the species profile for oreos.

10. Guidelines for Annual National Reports to the SWG

The Chair recalled that initial draft guidelines for annual National Reports to the SWG had been tabled for discussion at the SWG5 meeting in Guayaquil. That meeting had not reached any final conclusions on standards for such reports and agreed to defer the matter to this meeting, and to exchange views on the matter inter-sessionally. No further progress was made inter-sessionally, and the SWG again agreed to conduct an inter-sessional exchange of views and proposed revisions, with a view to agreeing on report guidelines to adopt at the next meeting.

11. Future Scientific Work Programme

11.1 Identification of short & medium term science requirements

The SWG identified the following inter-sessional work requirements:

- Complete the draft species profile for oreos and develop profiles for pelagic armourhead, toothfish and wreckfish, and submit proposed revisions to other species profiles.
- Consider and comment on proposed draft national report guidelines.
- Exchange of proposals for nominations for the Chair of the Deepwater Sub-Group.

The SWG also requested the Secretariat to attend to the following:

- Follow up outstanding data submission requirements, particularly for jack mackerel data which might be required for the jack mackerel stock assessments to be conducted before the next meeting.
- Obtain the bottom fishing footprint information from Chile presented in document SPRFMO-VI-SWG-04, and continue development of a SPRFMO geospatial database of joint bottom trawl footprint, seamounts, VMEs, bathymetry and EEZ boundaries.
- Coordinate the Benthic Assessment Process for any assessments submitted by participants in bottom fisheries in the SPRFMO area.
- Receive and circulate any information received on proposed revisions to species profiles.
- Coordinate an exchange of views on guidelines for National Reports to the SWG before the end of January 2009.

11.2 Identification of research and assessment matters to refer back to each of the SWG Sub-Groups

The SWG noted the following inter-sessional work items were being attended to by the participants in the Jack-Mackerel Subgroup:

International Jack Mackerel Stock Structure Research Programme

- Establishment of a Steering Committee for implementation of the Jack Mackerel Stock Structure Research Programme.
- Reviewing and revision of the research programme budget and planning of a *Sampling Protocols and Analysis Methods Workshop* by the Steering Committee.
- Determination of the level and nature of support of participants for the various components of the research programme, and review of the scope of the research programme once the level of support has been determined.

Jack Mackerel Stock Assessment Process

- Consideration of options for conducting a special jack mackerel stock assessment workshop or workshops to develop assessment approaches and provide the requested advice on the status of jack mackerel stocks in 2009.
- Review and revision of the jack mackerel species profile.

The SWG noted the following inter-sessional work items were being attended to by participants in the Deepwater Sub-Group:

- Complete development of the draft detailed SPRFMO *Bottom Fishery Impact Assessment Standard*, based on the SPRFMO Benthic Assessment Framework and the FAO Guidelines, for consideration at the next meeting.
- Inter-sessional exchange of views on appropriate assessment and management approaches for deepwater species, and preparation of initial discussion documents on this matter by Chile and New Zealand.
- Review and comment on any submitted fishery impact assessments, either inter-sessionally, or at the next meeting, depending on when these are received.

12. SWG Chairmanship

The meeting proposed that the Chair of the SWG be nominated for the remainder of the interim period, with a maximum term of office of two years before re-consideration of nominations for SWG Chair.

Andrew Penney was nominated as SWG Chair for this proposed term of office.

13. Other Matters

13.1 Deadlines for Submission of Documents

Some participants expressed concern at the late submission or circulation of some documents tabled at SWG and Sub-Group meetings. Late submission of documents, particularly of complex documents that require national consultation before discussion at SWG meetings, complicated the discussion of these documents, potentially resulting in these being deferred until the next meeting.

The SWG recommended that all documents should be submitted to the interim Secretariat, and posted on the SPRFMO website, at least one week prior to any SWG or Sub-Group meeting. The Chairs and Secretariat were requested to remind participants of this submission deadline in advance of future meetings.

14. Adoption of SWG Report

The SWG Plenary Report was adopted after inclusion of edits proposed by participants.

15. Meeting Closure

The SWG meeting was closed at 12h15 on 3 October 2008.

ANNEX 1 SWG

**AGENDAS FOR THE SCIENCE WORKING GROUP
and SWG SUB-GROUPS**

**Canberra, Australia
29 September – 3 October 2008**

**SCIENCE WORKING GROUP: PLENARY
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 will provide research and management advice to the Negotiations.

12. Welcome & Introductions

13. Status of Science Working Group Sub-groups

14. Adoption of Agenda

15. Administrative Arrangements

15.1. Meeting documents.

15.2. Meeting arrangements.

16. Nomination of Rapporteurs

17. Inter-Sessional Work

17.1. Report from the Interim Secretariat on status of catch & effort data submission.

17.2. Update by the Interim Secretariat on status of the SPRFMO bottom fishing footprint maps, and the SPRFMO GIS database.

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

(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. The JMSG will provide a summary of these key results for inclusion in the SWG report under this agenda item. 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)

19. 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 DWSG will provide a summary of these key results for inclusion in the SWG report under this agenda item. The SWG Plenary may add further comment from a Plenary perspective, after review of the JMSG Report. In addition, the detailed report of the DWSG meeting will be appended to the SWG report in full.)

20. Species and Habitat Profiles

- 20.1. Review of new species or habitat profiles.
- 20.2. Revisions to existing profiles.
- 20.3. Prioritisation and process for further species profile development.

21. Guidelines for Annual National Reports to the SWG

- 21.1. Consideration of draft guidelines for annual National Reports to the SPRFMO SWG.

(Further consideration of the draft guidelines for annual National Reports to the SWG, initially tabled and discussed at SPRFMO5 SWG meeting in Guayaquil.)

22. Future Scientific Work Programme

- 22.1. Identification of short & medium term science requirements.
- 22.2. Identification of research and assessment matters to refer back to each of the SWG Sub-Groups.

23. SWG Chairmanship

(Consideration of nominations for Chair of the SWG for the next term of office.)

24. Other Matters

25. Adoption of SWG Report

26. Meeting Closure

**SCIENCE WORKING GROUP: JACK MACKEREL SUB-GROUP
AGENDA**

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**
- 2. Adoption of Agenda**
- 3. Administrative Arrangements**
 - 3.1. Meeting documents.
- 4. Nomination of Rapporteurs**
- 5. Report on the Jack Mackerel Stock Structure and Assessment Workshop**
- 6. Jack Mackerel Stock Structure Research Programme**
 - 6.1. Establishment of a Jack Mackerel Research Programme Steering Committee
 - 6.2. Identification of participants in the Research Programme
 - 6.3. Revisions of Budget
 - 6.4. Protocols and methods workshop
 - 6.5. Timetable of proposed research activities
- 7. Jack Mackerel Stock Assessment and Modelling Approaches**
 - 7.1. Data compilation, vetting and dissemination
 - 7.2. Plan for development of agreed assessment models
 - 7.3. 7.3 Management Strategy evaluation
- 8. Process for Provision of Advice to the Science Working Group on the Status of Jack Mackerel in 2009**
- 9. Revisions to the Jack Mackerel Species Profile**

10. Other Matters

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

(In addition to preparation of a detailed JMSG 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.)

SCIENCE WORKING GROUP: DEEPWATER SUB-GROUP AGENDA

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

2. Adoption of Agenda

3. Administrative Arrangements

3.1. Meeting documents.

4. Nomination of Rapporteurs

5. Chairmanship of the Deepwater Sub-Group

(Report back on any email exchanges or proposals for nominations for this position, and nomination of a Chair for this Deepwater Sub-Group meeting.)

6. SPRFMO Benthic Assessment Standard

6.1. Report-Back on FAO Guidelines for Deep-Sea Fisheries on the High Seas

(Report back on the final session of the FAO Technical Consultation on Guidelines for the Management of Deep-Sea Fisheries on the High Seas)

6.2. Progress with the SPRFMO Benthic Assessment Standard

(Report back on progress being made with developing a draft of the detailed SPRFMO Benthic Assessment Standard. Consideration of aspects of the FAO Deep-Sea Fisheries Guidelines that should be incorporated into the SPRFMO Benthic Assessment Standard, particularly related to definitions of VMEs, evaluation of significant adverse impacts and guidelines for content of benthic assessments)

6.3. Evidence and Existence of VMEs

(Discussion of any new papers submitted related to effective approaches for detecting evidence of VMEs during fishing operations, and for determining existence of VMEs)

7. Deepwater Species Assessment and Management

(Consideration of any aspects of the FAO Deep-Sea Fisheries Guidelines that should be incorporated into SPRFMO approaches for the effective assessment and management of low-productivity deepwater species. Discussion of any new papers submitted on options for assessment and management of low-productivity deepwater species)

8. Benthic Assessments

(Review and comment on any benthic assessments that may have been submitted for proposed fisheries in the SPRFMO area, or discussion of questions which have arisen about these assessment requirements or process since SPRFMO5 in Guayaquil.)

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 2 SWG

List of Participants

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ANNEX 3 SWG

**Report of the Jack Mackerel Subgroup
Canberra, Australia
30 September – 2 October 2008**

12. Opening of the Meeting

The meeting of the Jack Mackerel Sub-group (JMSG) of the Science Working Group (SWG) was opened by the chair, Mr Sandy Morison (Australia) at 1500hrs who welcomed all participants.

The chair provided some introductory remarks reminding delegates of the role of the group in providing advice through the Science Working Group to the Participants to the Negotiations on the status of pelagic stocks as requested in the Interim Measures.

13. Adoption of Agenda

The Agenda was adopted and it is attached as Annex 1 of the Report of the Science Working Group.

14. Administrative Arrangements

A list of participants is attached as Annex 2 of the Report of the Science Working Group.

14.1. Meeting documents.

A list of documents from the meeting is provided as SPRFMO-VI-SWG-02.

15. Nomination of Rapporteurs

Mr Rodolfo Serra (Chile) offered to act as rapporteur for the meeting.

16. Report on the Jack Mackerel Stock Structure and Assessment Workshop

The chair congratulated the organisers and participants on conducting a very successful Stock Structure and Assessment Workshop (SSAW) held in Santiago, Chile from 30 June to 4 July 2008, and provided a brief overview of the main outcomes and recommendations. Over 50 participants attended the workshop and 24 papers were presented.

The complete report of the workshop is provided as SPRFMO-VI-SWG-JMSG-02.

A consensus was reached at the workshop on four working hypotheses on stock structure for jack mackerel. These are to become the main focus of the future stock structure research programme.

The workshop also recognised the value of evaluating the status of jack mackerel stocks using the three modelling approaches considered at the workshop.

An inventory of data available for future stock assessments was compiled at the workshop, and the data needed for conducting assessments under different stock structure scenarios were also identified. Desirable features of and processes for future stock assessment were also identified.

Two recommendations from the workshop were directed to the Data and Information Working Group. The second of these aimed to provide for the release of data at a finer spatial scale than is currently permitted under the current Data Standards and was re-directed to the JMSG. The JMSG has responded under Agenda Item 7.1 below.

A draft stock structure research programme was presented to the Stock Structure and Assessment Workshop and endorsed there. The chair commented that a strong collaboration and commitment from the participants in this meeting is needed for a successful implementation of the proposed research programme.

Some comments were made by some participants about other alternative hypotheses but the Chair said that the report of the WS was already adopted. To add other hypotheses or to answer questions like boundaries and mixing rates is now matter for the stock structure research program that was proposed.

17. Jack Mackerel Stock Structure Research Programme

17.1. Establishment of a Jack Mackerel Research Programme Steering Committee

The JMSG endorsed the proposal from the Stock Structure and Assessment Workshop for a steering committee to be formed to oversee planning and implementation of the Jack Mackerel Stock Structure Research Programme.

The desire was expressed for the steering committee to include representatives from the major participants in the jack mackerel fishery, but that members should be nominated on the basis of their experience with design of research programmes. It was also noted that it was desirable for the committee to include members with experience in each of the stock structure methods proposed to be used in the research programme.

Members of this steering committee were to initially include nominations from Chile, China, Cuba, the European Community, Peru, and Russia. It was suggested that requests for nominations for membership of this steering committee should be formally made to these countries. The Interim Secretariat agreed to assist with the distribution of such requests.

The steering committee would be responsible for reviewing and revising the programme budget, planning of the proposed workshop on sampling protocols and analysis methods, preparation of a programme timetable, and better coordination of relevant existing research activities among participants in the Research Programme.

It was agreed that whenever possible the business of this steering committee should be conducted by email or other methods that avoided the need for face-to-face meetings.

17.2. Identification of participants in the Research Programme

The chair reiterated previous calls for clear indications of the nature and level of support that countries could provide to the proposed research programme.

New Zealand and Australia indicated that they have no interest in the high seas jack mackerel fishery and could not contribute to the steering committee or research programme.

Russia indicated that it may contribute with at least one research vessel to undertake acoustic surveys in the high seas in the southeast Pacific Ocean between September 2009 and January 2010 and collect biological samples for

genetic and other research. Additional work in the high seas in the southwest Pacific Ocean may also be undertaken.

Chile mentioned that it is not currently able to make a financial contribution to the proposed research programme.

The chair noted that the steering committee should also review the scope of the proposed research programme once the level of support has been determined.

17.3. Revisions to the Budget

Mr Serra indicated that the budget as currently estimated was substantial but that it would be revised once the number of participating countries, the level of their commitment, and the techniques in which they would participate was known.

17.4. Protocols and methods workshop

An important function of the proposed steering committee would be to assist with the planning of a workshop to develop detailed protocols and methods for the collection, distribution and analysis of samples. The Chair noted that Dr Pablo Abaunza, the independent stock structure expert invited to the Stock Structure and Assessment Workshop, had advised that the detailed initial planning that should occur at such a workshop would be critical to the success of the proposed research programme.

As noted in the Stock Structure and Assessment Workshop report, such a workshop should document standardized protocols for sampling and for each of the stock structure techniques so that results obtained by all participating laboratories were robust, consistent and comparable. This is particularly important where samples were to be collected by different samplers in different countries, and where organic samples from individual fish were to be subject to analysis by different methods in different laboratories.

17.5. Timetable of proposed research activities

The chair noted that this should be prepared by the steering committee as part of its planning for the research programme.

18. Jack Mackerel Stock Assessment and Modelling Approaches

18.1. Data compilation, vetting and dissemination

It was noted that, although there had been much discussion and ideas put forward, not much progress has yet been achieved towards sharing data and developing joint assessments.

Chile reported that there are domestic legal restrictions to the provision of raw data from Chile, but that reports and documents containing assessments can be and are provided.

The data that are needed to be compiled for assessments under each of the stock hypotheses has been identified in the report of the Stock Structure and Assessment Workshop. Dr Ianelli, the independent stock assessment expert at that workshop, had also indicated that it is preferable to use raw data in assessment models. To examine the hypotheses concerning the potential for a shared stock between Peru and Chile (Hypotheses 1 and 2 as described in the report of the Stock Structure and Assessment Workshop), those countries could cooperate bilaterally and data does not necessarily have to be submitted to the Interim Secretariat. Peru noted that there has been bilateral collaboration with Chile for more than 10 years for the purpose of assessing the stocks of anchovy and sardines and that a similar agreement could potentially be developed for jack mackerel.

The JMSG recognised the need for participants to collect and submit data at the finest level of detail and resolution as specified in the agreed data standard.

A number of members supported the need for a special assessment workshop to be convened to review and use all the available data and to conduct assessments on jack mackerel. It was noted that there have been three different modelling approaches used on jack mackerel and the Stock Structure and Assessment Workshop had already recommended that the merits of all three should continue to be explored. It was suggested that an independent expert could also be involved in such an assessment workshop as this approach had been successful at the Stock Structure and Assessment Workshop. The results of such a workshop could help select the most appropriate results or model approach and therefore assist the JMSG in providing advice to the SWG Plenary. It was also noted that in similar groups in other international meetings data was provided under rules of confidentiality that allowed assessments to be conducted without it having to be made publicly available.

It was suggested that when the SPRFMO has been established it would become easier to share data among participants. Nevertheless, the SWG has been

requested to provide advice on the status of pelagic stocks in 2009 and concern was expressed that all the data needed to undertake assessments and address the working stock structure hypotheses has not yet been submitted to the Interim Secretariat. In addition, as noted by the Jack Mackerel Stock Structure and Assessment Workshop, there is the need, for stock assessment purposes, for data that has been submitted to the Interim Secretariat to be made available at a finer resolution than is currently allowed under the definition of “public domain” data specified in the agreed ‘Standards For The Collection, Reporting, Verification And Exchange Of Data’.

To address this second concern, the JMSG therefore requests that the collective Parties to the Negotiation, as provided for under the agreed Maintenance of Confidentiality provisions (Section 8.(c) (i) of the ‘Standards For The Collection, Reporting, Verification And Exchange Of Data’), provide a written request to the Interim Secretariat to compile the non-public domain data on jack mackerel that it currently holds, or may receive until the time of the assessment, and make it available to the JMSG for the purposes of conducting an assessment of the status of jack mackerel stocks.

18.2. Plan for development of agreed assessment models

The need for a plan for the development of assessment models was identified during the Stock Structure and Assessment Workshop. Discussion on data issues had already canvassed some options for such a plan. The chair suggested that these issues would be further discussed under Agenda Item 8.

18.3. Management Strategy evaluation

Management Strategy Evaluation was identified during the Stock Structure and Assessment Workshop as an important issue to be considered in the future but the chair suggested that consideration of this issue be deferred for future meetings and after an agreed assessment approach had been developed.

19. Process for Provision of Advice to the Science Working Group on the Status of Jack Mackerel in 2009

Updates on jack mackerel population status

Chile gave a summary presentation of SPRFMO-VI-SWG-JMSG-04 Chilean Jack Mackerel Management System: Synthesis and Recommendation. This reiterated the assessment results presented to the Guayaquil meeting and to the Stock Structure and Assessment Workshop. Chile expressed its concern that there was evidence of a high risk to the condition of the straddling stock and to the sustainability of the fishery in the declining trends of the stock indicators such as total biomass and spawning biomass in the area covered by the Chilean

assessment (under stock structure hypothesis 3). Chile also proposed that the present state of the stock indicated a need to review the Interim Measures adopted in Reñaca and to limit catch and effort to current levels. Chile also recommended the application of a global catch quota consistent with the present status of the population and the need to ensure the sustainability of the fishery.

The chair also highlighted the results in the Chilean paper that indicated that the current spawning biomass was estimated to be between 24% and 27% of unfished levels (depending on the hypothesised reasons for observed changes in the distribution of jack mackerel), compared to the target reference point used by Chile of 40%.

Some participants shared the Chilean concern about the status of jack mackerel and the need to introduce regulations as soon as possible.

Chile clarified that its jack mackerel assessment was updated every year and incorporated the available data on the catches taken by the international fleet. Chile agreed to provide the results of its latest assessment early next year.

Peru expressed its appreciation for the information provided by Chile and then provided a brief statement about the management of jack mackerel in Peru and the condition of the stock of jack mackerel exploited by its fisheries. Peru indicated that it was recognized to have one of the major fisheries of the world, that IMARPE (its fisheries research institute) had a well recognized reputation, a long history of scientific research on its fisheries and extensive capacities in this regard.

Peru also indicated that it was developing an extensive research programme on jack mackerel which will contribute to the proposed international research programme. The results of its intensive research and assessment of the jack mackerel stock has indicated that the stock was currently underexploited. This was considered to reflect the effects of its management plan which prohibited the production of fish meal from jack mackerel, reserved its use exclusively for human consumption, and specified a 31 cm minimum length. Previous Peruvian assessments of the status of jack mackerel (under stock structure hypothesis 1) had indicated biomass levels of 8.6 million tonnes in 1993 and an annual yield of about 400 000 tonnes, but that this had fallen to a biomass of less than 2 million tonnes in 1998/99 with an annual catch less than 300 000 tonnes which shows the underexploited condition of the Peruvian stock.

Russia reiterated assessment results presented at the Stock Structure and Assessment Workshop. According to the Russian assessment of the high seas biomass of jack mackerel (under stock structure hypothesis 4) in the south Pacific in the area of available international catch data is relatively stable with the average of about 7 million tonnes.

A question was raised about the area of interest to the JMSG. The JMSG noted that the SWG had an obligation to provide the advice on straddling stocks and consider information from across the whole range of such stocks. Furthermore the comment was made that all data has yet to be submitted to the Interim Secretariat consistent with the agreed data standards, and that it was important that when such data on straddling stocks was submitted that it distinguish between catches that were taken from the high seas and those taken within an EEZ.

The chair presented a list of what he viewed were some of the key questions that should be addressed as the JMSG frames its advice in 2009. These included questions regarding the implications of various future catch levels on jack mackerel stock status and changes in spatial distribution, what are the risks and consequences of having the wrong stock structure hypothesis, the appropriate target reference point to use and the key uncertainties in any future assessment. Some of these could be examined through sensitivity analysis in future assessments.

Proposed stock assessment workshops

There was further discussion of the options for establishing a special stock assessment group. It was noted that it would be undesirable to establish a subsidiary level of organisational structure below the JMSG, that the JMSG itself was responsible for conducting assessments, and that it was within the terms of reference for the JMSG to convene if necessary an inter-sessional workshop to conduct such assessments.

Chile made a presentation of proposed terms of reference for a “Workshop on the Stock Assessment Framework for the Jack Mackerel”. The concept was to hold a preliminary workshop, before any actual stock assessment meeting, to develop the assessment framework and to specify some key details of the assessment model. It was suggested that such a workshop would:

- To agree on a stock assessment approach
- To select a statistical platform to conduct the stock assessments
- To identify target biological reference points and limit reference points to facilitate the diagnosis of the stock
- To review values for life history parameters to be used in the stock assessments (M, Sexual maturity, etc.)
- To identify a harvest control rule to estimate catch levels and associated risk
- To propose the organisational arrangements for the assessment workshop.

Representation of the major countries participating in the fishery is desirable.

- To document a working assessment protocol covering all the aspects defined above.

It was noted that objectives of this workshop may be defined, developed and revised by participants inter-sessionally.

It was proposed by Chile that the *Stock Synthesis* assessment programme would be a suitable platform for implementing jack mackerel assessments. But it was reiterated that the three existing types of assessment approaches should be examined and that a special stock assessment workshop could give advice as to what program could be a suitable platform for the implementation of jack mackerel assessments.

There were expressions of support for the proposed workshops but issues such as the timing, location and potential for additional funding to be secured from the FAO would have to be explored inter-sessionally. A formal proposal would need to be prepared if funding was to be obtained from the FAO. The suggestion was made that the Interim Secretariat could assist in facilitating the organization of any workshops.

There was general agreement that such an assessment workshop or workshops was highly desirable and that it needs to take place as early as possible in 2009 in order for its results to be incorporated into the advice to be provided by the JMSG in 2009. A date of March 2009 was suggested as the earliest option for any workshop.

It was suggested again that as much of the work as possible should be conducted by email or other methods that avoided the need for face-to-face meetings.

Chile indicated that it could not make a commitment to hold such a workshop right now but consultation will be made.

Preliminary advice from the JMSG on the current status of the jack mackerel

At the SWG meeting in Guayaquil, some participants expressed concern about the status of the Chilean jack mackerel stock and the increased risk to the stock from increases in fishing capacity. Some participants of the JMSG in October 2008 note the continuing declining trend in the jack mackerel spawning biomass and recruitment levels as reported in the Chilean stock assessment tabled at the recent Stock Structure and Assessment Workshop, and the reported increased catch of jack mackerel on the high seas, and consider that the situation represents a further increase in the risk to the stock. Some members of the JMSG urge states that participate in the jack mackerel fishery in the area covered

by the Chilean assessment to restrict their catches to a level consistent with sustainable utilization of this resource.

However, depending on which stock structure hypothesis is assumed to be correct, the exploitation rate of high seas jack mackerel, straddling Chilean jack mackerel stock, and the Peruvian jack mackerel stock could be different.

This needs to be investigated using the various stock assessment models proposed.

20. Revisions to the Jack Mackerel Species Profile

The revised jack mackerel species profile was briefly considered and the chair suggested that, given the short time that members had to review the revised draft, comments should be submitted inter-sessionally and the consolidated revised version considered at the next meeting of the JMSG.

21. JMSG Chair

The meeting proposed that the chair of the JMSG be nominated for the remainder of the interim period with a maximum term of office of two years before reconsideration of nominations for the chair.

Sandy Morison was elected to serve as Chair for this period.

22. Other Business

No other matters were raised.

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

The jack mackerel sub-group report and summary were adopted after agreed amendments were made.

ANNEX 4 SWG

**Report of the Deepwater Subgroup
Canberra, Australia
2 October – 3 October 2008**

1. Opening of the Meeting

The first meeting of the Deepwater Sub-Group (DWSG) was opened by the Chair of the Science Working Group, Andrew Penney.

2. Adoption of Agenda

The draft DWSG agenda was adopted without revision (Annex 1 of the Report of the Science Working Group).

3. Administrative Arrangements

3.1 Meeting documents

The three documents tabled for discussion by the DWSG were SWG-04, SWG-05 and SWG-Inf 01.

4. Nomination of Rapporteurs

Kelly Denit of the USA offered to assist the Chair in rapporteuring the meeting.

5. Chairmanship of the Deepwater Sub-Group

No nominations for Chair of the DWSG had been received since the previous SWG meeting. Chile proposed that the Chair of the SWG act as Chair of the DWSG for this meeting. Mr Penney agreed to act as Chair for this meeting only. The participants agreed to again conduct an inter-sessional exchange of views regarding nominations for a DWSG Chair.

6. SPRFMO Benthic Assessment Standard

6.1 Report-Back on FAO Guidelines for Deep-Sea Fisheries on the High Seas

The Chair reported back on the final meeting of the FAO Technical Consultation to develop International Guidelines for the Management of Deep-Sea Fisheries on the High Seas. Most of the participants in the SPRFMO negotiations had participated in the FAO meetings and contributed to the development of the FAO guidelines. The guidelines were tabled as document SWG-INF-01.

The Chair noted that, as a result of participation by many of the SPRFMO participants, the SPRFMO Interim Measures, and adopted standards such as the Benthic Assessment Framework, were already compatible with many of the paragraphs of the FAO Guidelines:

- The guidelines would be applicable to all bottom fisheries in the SPRFMO area, particularly for species that can only sustain low exploitation rates (FAO Scope & Principles, para 1).
- Requirements to implement processes to publicise and review assessments, including by a Scientific Committee (FAO paras 50 and 51) were already addressed in the SPRFMO Benthic Assessment Process adopted in Noumea.
- The requirement to prepare maps of spatial extent of fisheries (FAO para 64) was already addressed in the Benthic Assessment Framework adopted in Noumea.
- Requirements to monitor interactions with VMEs during fishing operations, to report such interactions, and to implement management measures to prevent significant adverse impacts on VMEs (FAO paras 66 - 69) were addressed in the SPRFMO interim measures for bottom fisheries clauses 6 and 7.
- The need for spatial measures to complement effort and catch controls (FAO 72) was recognised in the report of the SWG4 meeting in Noumea.
- The requirement to conduct assessments to evaluate whether bottom fisheries will have significant adverse impacts on VMEs (FAO 77) is covered by the requirements of SPRFMO interim measures for bottom fisheries clauses 3, 11 and 12.

6.2 Progress with the SPRFMO Benthic Assessment Standard

The meeting recommended that the draft SPRFMO assessment standard being developed should be titled the '*SPRFMO Bottom Fishery Impact Assessment Standard*'.

The Chair noted that New Zealand had undertaken to develop a first draft of the detailed Bottom Fishery Impact Assessment Standard to replace the interim Benthic Assessment Framework adopted in Noumea. This standard would provide additional guidance on preparation of fishery impact assessments as required by the SPRFMO interim measures for bottom fisheries. New Zealand

had indicated that they would circulate the initial draft for comment by July 2008, prior to consideration of the draft standard at the SWG6 meetings. However, aspects of the assessment standard (such as definitions of VMEs and significant adverse impacts) were dependant on the outcomes of the FAO Technical Consultations, and so the preparation of the draft standard had been delayed until the FAO Guidelines were completed.

The Chair noted that, while the SPRFMO interim measures and benthic assessment framework were already compatible with many of the FAO guidelines, it would be necessary to ensure that the detailed benthic assessment standard was fully compatible with all relevant aspects of the guidelines. Participants were asked to identify and comment on paragraphs of the FAO guidelines which were considered particularly relevant to developing an impact assessment standard for SPRFMO.

Chile presented an overview of their document SWG-05, which contained a number of proposed amendments based on the original draft interim Benthic Assessment Framework discussed in Noumea, including suggested incorporation of a number of relevant paragraphs from the FAO Guidelines. In discussing the Chilean proposals, the meeting confirmed that certain key aspects of the Benthic Assessment Framework, particularly the definition and resolution of the SPRFMO bottom fishing footprint and the agreed hierarchy of potential impacts of different bottom fishing gears, had been agreed and adopted by SPRFMO in Noumea, and should not be changed. Participants noted that more time was required to review the Chilean proposal relating to structure of impact assessments to be conducted.

Document SPRFMO-VI-SWG-05 proposed the inclusion of key paragraphs from the FAO Guidelines related to definitions of vulnerability (FAO paras 14 - 16), significant adverse impacts (FAO paras 17 - 20) and vulnerable marine ecosystems (FAO para 42 and Annex 1). The meeting agreed that the draft fishery impact assessment standard will need to be compatible with these paragraphs, to the extent of referring to or quoting them as necessary in the relevant sections of the SPRFMO standard.

The meeting noted that FAO Guidelines para 47 gave specific guidance on the sections and information which fishery impact assessments should contain, and that the SPRFMO bottom fishery impact assessment standard will need to address, *inter alia*, the information required under these guidelines. Document SPRFMO-VI-SWG-05 suggested a layout and information requirements for the assessments which differed quite substantially from the interim Benthic Assessment Framework. This alternate layout reflects an interpretation of the requirements of the FAO Guidelines regarding structure of a fishery impact assessment.

Participants agreed that there needed to be further inter-sessional exchange of ideas on the structure and composition of assessments. It was particularly noted that assessment standards should be flexible enough to take account of fisheries at different stages of development, and that different approaches might be

required for fisheries with very different histories, levels of fishing effort or availability of information. The Chair encouraged all participants to submit proposals in this regard, and particularly to participate actively in review and commentary on the draft SPRFMO Bottom Fishery Impact Assessment Standard, once this has been circulated. Chile proposed that a workshop be held to make progress with the development of the assessment standard.

New Zealand undertook to ensure that the draft SPRFMO Bottom Fishery Impact Assessment Standard being developed was compatible with the FAO Guidelines, particularly the various paragraphs emphasized above, and to circulate an initial draft of the standard for comment well before the next meeting.

6.3 Evidence and Existence of VMEs

No further papers were tabled on possible approaches to defining evidence of interactions with VMEs during fishing operations, or approaches to determining existence of VMEs from evidence of interactions.

The Chair noted that the FAO guidelines provided general definitions of VMEs and significant adverse impacts, and that Annex 1 to the FAO Guidelines provided examples of taxonomic groups considered vulnerable, and which may contribute to forming VMEs, and of seabed features which might support such vulnerable species. This Annex also noted that merely detecting the presence of VME species or habitats is not sufficient to identify presence of a VME itself. Discussions at the FAO had recognised the need for a subsequent process to analyse all evidence of interactions with VMEs to determine presence and map distributions of actual VMEs.

7. Deepwater Species Assessment and Management

No papers were tabled on effective approaches for the assessment and management of low productivity deepwater species.

The Chair noted that the report of the SWG5 meeting in Guayaquil (Section 8 - Deepwater Species Assessment and Management) presented a summary of some initial suggested guidelines on the implementation of precautionary approaches to sustainable exploitation of deepwater fisheries, and suggested measures that should be included in such approaches, as recommended by the FAO Expert Consultation meetings that preceded the development of the FAO Guidelines. The guidelines themselves (FAO Management and Conservation Tools para 65) had now picked up similar recommendations related to the need for precautionary effort limits, precautionary spatial catch limits, regular review of appropriate stock status indices and revision of limits downwards when significant declines are detected.

The meeting noted that a number of the other paragraphs in the FAO Guidelines also provide some guidance on assessment and management of low-productivity deepwater species:

- Paragraph 13 list many of the characteristics of deepwater resources which result in low productivity and slow recovery, and notes that such resources can only sustain very low exploitation rates.
- Paragraph 21 i) recommends measures to ensure the conservation of target and non-target species, including relevant reference points, and para 22 notes that measures for sustainable exploitation of deep sea fisheries should be consistent with the precautionary approach.
- Paragraphs 32 and 34 note that fisheries data should be collected at a sufficiently fine scale, and should be submitted to RFMOs at the appropriate resolution, for stock assessment and evaluation of impacts of fisheries on VMEs.
- Paragraphs 40 and 41 provide some recommendations for assessing deepwater species across the ranges of their distribution, and adequately quantifying uncertainty, particularly where data limitations necessitate the use of simplified assessment approaches.
- Paragraph 76 emphasizes the need for biological reference points set at precautionary levels to ensure long-term sustainable exploitation, while para 77 specifically recommends that, for low productivity species, fishing mortality should not exceed the estimated or inferred natural mortality for the species.

The guidance in these paragraphs should be taken into account when developing assessment approaches for low productivity species in the SPRFMO area.

Chile noted the need to develop assessment approaches on a case-by-case basis, taking account of the amount of information available for particular species when developing assessments and evaluating exploitation strategies. Chile offered to prepare a discussion document on difficulties and possible approaches to deepwater species assessment for discussion at a future DWWSG meeting. New Zealand noted that they were also reviewing information on possible options for evaluating sustainable yield levels of species such as orange roughy in the SPRFMO area, and would table the results for discussion at a future meeting.

8. Benthic Assessments

No benthic or fishery impact assessments were submitted by SPRFMO participants for review by the SWG. New Zealand noted that they had delayed submission of their assessment to incorporate any additional requirements that might result from finalisation of the FAO Guidelines, and would be submitting their assessment for review prior to the next meeting.

Chile provided an overview of the key points in the paper SPRFMO-VI-SWG-04 on the Chilean approach to implementation of the SPRFMO Interim Measures on Bottom Fisheries. The Chair invited questions or comments on the scientific aspects of the Chilean paper, particularly those aspects relevant to the fishery

assessments, and noted that questions related to actual implementation of the interim measures should be presented to the Negotiations.

Chile provided the following answers in relation to questions for clarification.

- The catch information presented in Table 1 related to exploratory bottom fisheries in the SPRFMO area over the period 2002-2006. Chile was asked to ensure that the Secretariat received all catch and effort data related to these fishing operations.
- The map of the Chilean bottom fishing operations over 2002 - 2006 presented in Figure 1 showed the bottom fishing footprint for these operations in the SPRFMO area, as required by the SPRFMO Benthic Assessment Framework. Chile was requested to submit this footprint map to the Secretariat for inclusion in the joint SPRFMO bottom fishing footprint map.
- Chile explained that the 240 fishing vessels referred to under their description of implementation of Article 2 of the SPRFMO interim measures for bottom fishing includes all fishing vessels, including pelagic and bottom fishing vessels, that were granted a Chilean fishing authorization to fish on the high seas from 2002 - 2007. Chile was requested to provide specific information on the number of vessels which participated per year in bottom fishing in the SPRFMO area for the years 2002 - 2006.
- Chile noted that information on regulations and TACs for specific species shown in the Appendices to their paper related to fishing within the Chilean zone.

In response to questions by a number of SWG participants, Chile confirmed that their current legislation related to high-seas fishing authorizations allows for fishing on any species, but does not provide for restrictions of any kind. The Chair noted that further questions and discussions relating to implementation of the interim measures should be referred to the Negotiations.

The meeting emphasized the importance of submitting data on interactions with VMEs to the Secretariat. However, it was noted that additional work would be required to develop data standards and data formats for VME data before the Secretariat could capture such data onto a database. This would probably only be done over the course of 2009, once development of the Secretariat's GIS capabilities began.

9. Other Matters

No other matters were discussed.

10. Adoption of Deepwater Sub-Group Report

The DWSG report and summary were adopted after inclusion of edits proposed by participants.

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