

**Record of the Sixth Inter-Governmental Meeting on Management of
High Seas Bottom Fisheries in the North Pacific Ocean**

**Busan, Korea
18-20 February, 2009**

1. Welcome and Opening of the Meeting

The meeting was opened at 10:00 am on Wednesday, 18 February, 2009 by Mr. Il Jeong Jeong from Korea. Participants from Canada, Japan, the Republic of Korea (Korea), the Russian Federation (Russia), and the United States of America (U.S.) attended the meeting (Attachment 1). Canada participated only in the discussions of the revised Convention Text.

2. Election of Chair

Dr. Hyun-jin Park of Korea was elected Chair. LCDR Daniel Schaeffer from the United States of America agreed to serve as rapporteur.

3. Adoption of the Agenda

The agenda was reviewed and adopted (Attachment 2) and a document list was provided (Attachment 3).

4. Reports

i) Report from Interim Secretariat on Outcome of the Fifth Inter-governmental Meeting

The Interim Secretariat (I.S.) presented a summary of the Fifth Inter-Governmental Meeting (IGM) held in Tokyo, Japan, 17-18 October 2008. (NPO6/WP3)

ii) Report from the Sixth Scientific Working Group

Dr. Dae-Yeon Moon presented the report of the Sixth Scientific Working Group (SWG) meeting, held 16-17 February, 2009 in Busan, Korea. (NPO6/WP4)

5. Discussion on the revised draft Convention Text.

The I.S. presented an overview of the revised draft Convention Text (NPO6/WP5). The Participants then proceeded to review the revised draft Convention Text (the Text) in general terms.

The Participants completed the first reading of the Text and achieved a general understanding of the content of the Articles and an awareness of the areas that will require further discussion. The rapporteur agreed to provide Participants an informal record of the discussions related to the Text. Participants are free to utilize the informal record to assist them in analyzing and formulating input to the Text.

Participants agreed to provide comments on the Text to the I.S. by 15 May, 2009. The I.S. will compile the comments from Participants and circulate a revised Text to Participants one month prior to NPO7.

6. Discussion on the Interim Measures on VMEs and marine species

Exploratory Fishery Protocol

The Participants formally adopted by consensus the Exploratory Fishery Protocol forwarded by the SWG6. The I.S. will propose language to update the *New Mechanism for Protection of Vulnerable Marine Ecosystems and Sustainable Management of High Seas Bottom Fisheries in the Northwestern Pacific Ocean* (Interim Measures) to reflect the adoption of the Protocol.

Participants adopted the *New Mechanism for Protection of Vulnerable Marine Ecosystems and Sustainable Management of High Seas Bottom Fisheries in the Northwestern Pacific Ocean* with revisions as reflected in Attachment 4.

VME Encounter Protocol

The U.S. raised its revised proposal for an encounter protocol discussed during SWG6. The Participants acknowledged that the proposal represented a significant step forward from the previous proposal discussed at IGM5 in December 2008. However, no consensus was reached on the proposal. In particular, the issue of most concern was the threshold for triggering the protocol in terms of quantity of indicator species.

In the absence of a consensus, Japan declared it will apply its own standard based on the NAFO encounter protocol, taking into account the differences in the fisheries between the NAFO area and the ES-NHR. Korea said it would apply the same standard as Japan which it considered an improvement over the current encounter provision contained in paragraph 4(f) of the Interim Measures

The U.S. reiterated its previous concerns about applying a standard recommended by the NAFO Working Group dealing with this issue to fisheries conducted in the ES-NHR. Trawls in the NAFO area can be [up to five to six] hours long and up to 30 KM in length. In the U.S. view, applying that same standard to fisheries where trawl time could be as short as an hour or less rendered the encounter provision meaningless and, as a result, was inconsistent with the obligations contained in UNGA Res. 61/105. The U.S. reiterated that its revised proposal was the same as the NAFO referenced standard when considered in terms of representative conditions and trawl times in the two areas. Finally, the U.S. expressed its view that, without a consensus on an alternative, the only agreed standard for implementing this provision is that contained in paragraph 4(f) of the Interim Measures.

Closure of Specific Areas.

The U.S. raised its proposed area closures discussed by SWG6, specifically the proposal to close Colahan Seamount as a stock rebuilding area and the southern section of Koko seamount below 35° 05'N latitude to protect known and potential VMEs. As in SWG6 no consensus on U.S. proposal was reached.

Korea, Japan, and Russia reached agreement on the closure of a portion of the area proposed by the U.S. as follows: the area of the South of 34 degrees 57 minutes North, East of the 400m isobaths, East of 171 degrees 54 minutes East, North of 34 degrees 50 minutes North which they consider is enough to protect possible VMEs in the area. In addition the three countries agreed to close C-H Seamounts as discussed at SWG5.

Japan proposed that the Interim Measures be amended by consensus to include these measures.

The United States noted that if the fishing countries chose to implement this closure it was not necessary for the U.S. to join a consensus on this point. However, the U.S. could not agree to amend the Interim Measures on these points. In the U.S. view, the closure to be implemented for the Koko Seamount does not provide sufficient protection to that area of the ES-NHR where VMEs are known to occur and most likely to occur, based on the best available scientific evidence. As a result, the U.S. views the proposed measure as inconsistent with both UNGA Res. 61/105 and paragraph 5(a) of Interim Measures adopted by the Participants. In addition the U.S. views the closure of the two small peaks of the C-H Seamounts as having minimal conservation benefit and not as a viable alternative to the U.S. proposal for the closure of Colahan Seamount.

Although consensus was not reached at this meeting, the three fishing countries showed their willingness to implement their proposed closure on Koko Seamount, as described above, and C-H Seamounts.

7. Discussion for finalization of the report to UN in response to UNGA Resolution 61/105

Participants discussed the *Draft 2009 Report to the UN Secretary General on Bottom fishing in the High Seas of the North western Pacific*, NPO6/WP7/Rev1. The Participants were not able to finalize the report at this meeting. The U.S. pointed out several areas of the draft text that would require revision as part of any joint report and said it would make a decision on the report within two weeks.

8. Requested matters to the Interim Secretariat

a. Results of Contact with Taiwan

The Interim Secretariat sent a letter to Taiwan, NPO6/WP8, in January 2009. The letter has been received but there has not been a response to date.

b. Modified NWPO website

The Interim Secretariat reviewed and demonstrated the modification to the website. Participants are encouraged to provide to the I.S. any comments or suggestions for change.

c. List of Acronyms

The Interim Secretariat presented and offered opportunities for suggestions to the paper, *Acronyms and Abbreviation for Management of High Seas Bottom Fisheries in the North Western Pacific Ocean*, NPO6/WP10.

9. Timeline for Future Work

Based on the estimated time of the next IGM the I.S. proposed the following timelines for completion of work.

15 May 2009	Comments on the revised draft Convention Text
End of April	Joint Report due to the United Nations
End of March	Each fishing State should submit their list of authorized fishing vessels to the Interim Secretariat who will then post it on the website. Vessel lists should include: vessel name, gear type, flag state, international radio call sign, overall length, registration number, and gross registered tonnage

06 July 2009 Participating States to submit working paper to I.S. that describes their armorhead data holdings to include catch, effort, size, sex, and fatness index data by seamount and year

10. Dates and place of the next meeting

The Seventh SWG and IGM will be hosted by the U.S. in Seattle, USA during one of the first three weeks of August 2009. The specific dates and venue will be identified as soon as possible.

11. Other Matters

The Participants reiterated the consensus reached at the last meeting to expand the geographic scope of the new instrument to include both the Northwest and Northeast Pacific. While it was generally agreed that the scope should also be expanded with respect to fisheries other than bottom fisheries, Korea wished to reserve its position on this point since it needs more time for further internal consultations. . The other Participants stated that a definitive decision on this matter was necessary as soon as possible because the decision affects essential portions of the Convention Text. Korea agreed that, provided its reservation remained on the record, it was prepared to proceed with the negotiations on the basis of an expanded scope to include all fisheries not currently being managed under other international regimes. [] [Participants discussed the need to invite China and Taiwan to the next meeting, recognizing that this would need to be managed carefully given the political sensitivities. Russia said it would provide its response on the question of inviting Taiwan as soon as possible, but no later than 60 days.

Participants agreed that as of their next meeting in August 2009 the title of the meeting will be: “Multilateral Meeting on Management of High Seas Fisheries in the North Pacific Ocean”.

12. Adoption of the Record of the Meeting

Participating States adopted the report of the meeting.

13. Closing of the Meeting

The meeting was concluded at 18:15 on 20 February 2009.

Attachment 1: List of Participants –plenary meeting

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Attachment 2: Adopted agenda

6th Inter-governmental Meeting on Establishment of
New Mechanism for Management of High Seas (Bottom) Fisheries
in the North (Western) Pacific Ocean

Busan, KOREA
18 -20 February, 2009

Agenda

1. Welcome and opening of the meeting
2. Election of chair
3. Adoption of agenda
4. Reports
 - (i) Report from the Interim Secretariat on the outcome of the 5th Inter-governmental meeting
 - (ii) Report from the 6th Scientific Working Group on its work
5. Discussion on the revised draft convention text
6. Discussion on the additional Interim Measures on VMEs and marine species
7. Discussion for finalization of the report to UN in response to UNGA Resolution 61/105
8. Timeline for future work
9. Requested matters to the Interim Secretariat
10. Date and place of the next meeting
11. Other matters
12. Adoption of the record of meeting
13. Closing of the Meeting

Attachment 3: List of Documents

6th Inter-governmental Meeting on Management of High Seas (Bottom) Fisheries in the North (Western) Pacific Ocean

List of Documents

Information Papers

- NPO6/Inf 1: List of documents
- NPO6/Inf 2: List of Participants (to be finalized at the Meeting)

Working Papers

- NPO6/WP1: Provisional Agenda
- NPO6/WP2: Provisional Annotated Agenda
- NPO6/WP3: Report on the outcome of the 5th Inter-governmental Meeting.
- NPO6/WP4: Report of the 6th Scientific Working Group (to be provided from SWG)
- NPO6/WP5: Summary of Draft Convention Text for the North Pacific Ocean
- NPO6/WP6: Draft Convention Text for the North Pacific Ocean
- NPO6/WP7: Draft 2009 Report to the UN Secretary General on Bottom Fisheries in the High Seas of the Northwestern Pacific
- NPO6/WP8: The result of contact to Taiwan
- NPO6/WP9: NWPO website
- NPO6/WP10: Acronyms and Abbreviations for Management of High Seas Bottom Fisheries in the North Western Pacific Ocean

Reference Materials

- NPO6/Ref1: Record of the 5th Inter-Governmental Meeting
- NPO6/Ref2: 2006 UNGA Resolution (Extracted Paragraphs related to Bottom fisheries)

**New Mechanisms for Protection of
Vulnerable Marine Ecosystems and Sustainable Management of High Seas
Bottom Fisheries in the Northwestern Pacific Ocean**

**Adopted on 2 February 2007, Busan, Republic of Korea
Revised on 26 October 2007, Honolulu, Hawaii, United States of America
Revised on 18 October 2008, Tokyo, Japan
Revised on 20 February 2009, Busan, Republic of Korea**

Four countries, Japan, the Republic of Korea, the Russian Federation, and the United States of America, (Participating States) participated in international consultations on the establishment of new mechanisms for the management of high seas bottom fisheries by vessels operating in the Northwestern Pacific Ocean:

Strongly supporting protection of vulnerable marine ecosystem (VMEs) and sustainable management of fish stocks based on the best scientific information available,

Recalling the United Nations General Assembly Resolutions (UNGA) on Sustainable Fisheries, particularly paragraphs 66 to 71 of the UNGA59/25 in 2004, paragraphs 69 to 74 of UNGA60/31 in 2005, and paragraphs 69 and 80 to 91 of UNGA61/105 in 2006,

Noting, in particular, paragraphs 66 and 69 of UNGA59/25 that call upon States to take action urgently to address the issue of bottom trawl fisheries on VMEs and to cooperate in the establishment of new regional fisheries management organizations or arrangements,

Recognizing the importance of adopting and implementing conservation and management measures as called for in paragraphs 83 to 87 of UNGA61/105, and in particular paragraph 85, which calls upon states participating in negotiations to establish new mechanisms to regulate bottom fisheries to expedite such negotiations and to adopt and implement interim measures consistent with that resolution no later than 31 December 2007,

Recognizing further that fishing activities, including bottom fisheries, are an important contributor to the global food supply and that this must be taken into account when seeking to achieve sustainable fisheries and to protect VMEs,

Noting also that no regional fisheries management organization or arrangement exists for management of bottom fisheries by vessels operating on the high seas of the Northwestern Pacific Ocean,

Recognizing the importance of collecting scientific data to assess the impacts of these fisheries on marine species and VMEs,

Concerned about possible adverse impacts of unregulated expansion of bottom fisheries on marine species and VMEs on the high seas of the Northwestern Pacific Ocean,

They will take, in accordance with the following, urgent action on an interim basis, while working to design and implement more permanent arrangements, to promote appropriate management of high seas bottom fisheries in the Northwestern Pacific Ocean:

1. Scope

A. Coverage

High seas areas of the Northwestern Pacific Ocean, defined, for the purposes of this document, as those occurring within Food Agriculture Organization of the United Nations (FAO) Statistical Area No. 61, including all such areas and marine species other than:

- (i) those already covered by existing international fisheries management instruments, including bilateral agreements and Regional Fisheries Management Organizations or Arrangements, and
- (ii) closed high seas areas that are surrounded by the Economic Exclusive Zone of a single country.

B. Management target

Bottom fisheries conducted by vessels operating on the high seas.

2. General purpose

Sustainable management of fish stocks and protection of VMEs in the high seas areas of the Northwestern Pacific Ocean

For the immediate purpose of the measures referenced here, the term “VMEs” means, in particular, seamounts, hydrothermal vents and cold water corals. The Participating States will reevaluate, and as appropriate, revise, the definition based on further consideration of the work done through FAO and by the Scientific Working Group (SWG).

3. Principles

The implementation of this interim mechanism will:

- be based on the best scientific information available,
- be in accordance with existing international laws and agreements including UNCLOS and other relevant international instruments,
- establish appropriate and effective conservation and management measures,
- be in accordance with the precautionary approach, and
- incorporate an ecosystem approach to fisheries management.

4. Interim measures

Each country will take the following interim measures in accordance with its national laws and regulations in order to achieve sustainable management of fish stocks and protection of VMEs in the high seas areas of the Northwestern Pacific Ocean:

A. Limit fishing effort in bottom fisheries on the high seas of the Northwestern Pacific Ocean to the existing level in terms of the number of fishing vessels and other parameters which reflect the level of fishing effort, fishing capacity or potential impacts on marine ecosystems.

B. Not allow bottom fisheries to expand into areas of the Northwestern Pacific Ocean where no such fishing is currently occurring, in particular, by limiting such bottom fisheries to seamounts located south of 45 degrees North Latitude and to provisionally prohibit bottom fisheries in other areas of the Northwestern Pacific Ocean covered by these measures.

C. Notwithstanding subparagraphs A and B above, exceptions to these restrictions may be provided in cases where it can be shown that any fishing activity beyond such limits or in any new areas would not have significant adverse impacts (SAIs)

on marine species or any VME. Such fishing activity is subject to an exploratory fishery protocol(Annex 1).

D. Any determinations pursuant to subparagraph C that any proposed fishing activity will not have SAIs on marine species or any VME are to be in accordance with the Science-based standards and criteria (Annex2), which are consistent with the FAO International Guidelines for the Management of Deep-sea Fisheries in the High Seas

E. Any determinations, by any flag state or pursuant to any subsequent arrangement for the management of the bottom fisheries in the areas covered by these interim measures, that fishing activity would not have SAIs on marine species or any VME, will be made publicly available through agreed means.

F. Further, considering accumulated information regarding fishing activities in the Northwestern Pacific Ocean, in areas where, in the course of fishing operations, cold water corals are encountered, Participating States will require vessels flying their flag to cease bottom fishing activities in that location. In such cases, the vessel will not resume fishing activities until it has relocated a sufficient distance, which will be no less than 5 nautical miles, so that additional encounters with VMEs are unlikely. All such encounters, including the location and the species in question, will be reported to the Interim Secretariat, who will notify the other Participating States so that appropriate measures can be adopted in respect of the relevant site. It is tentatively agreed that the cold water corals include: Alcyonacea, Antipatharia, Gorgonacea, and Scleractinia.

This paragraph will be reviewed by the Participating States, and may be modified from time to time as more information becomes available.

5. Contingent Action

(a) In addition to the interim measures contained in paragraph 4 above, bottom fisheries in the areas where VMEs are known to occur or are likely to occur, based on the best available scientific information, shall cease by 31 December 2008, unless conservation and management measures have been established to prevent SAIs on VMEs, consistent with the relevant provisions of UNGA61/105 and such international standards as may be developed pursuant thereto.

(b) Participating States will submit to the SWG their assessments of the impacts of fishing activity on marine species or any VMEs, including the proposed management measures to prevent such impact. Such submissions will include all relevant data and information in support of any such assessment. Procedures for such reviews including procedures for the provision of advice and recommendations from the SWG to the submitting State are attached (Annex3). Participating States will only authorize bottom fishing activity pursuant to para 4 (c) and, after December 31, 2008, para 5(a), on the basis of such assessment and comments or recommendations from the SWG.

6. Scientific Working Group (SWG)

The Participating States have established an SWG to provide scientific advice and recommendations in accordance with the Terms of the Reference for that group adopted by the Second Inter-governmental Meeting. The SWG will not duplicate the functions of existing scientific organizations and arrangements in the Northwestern Pacific Ocean.

7. Scientific Information

To facilitate the scientific work associated with the implementation of these measures, each country shall undertake:

A. Collection of Information for purposes of defining the footprint

In implementing paragraphs 4A and 4B, the Participating States will provide for each year, 2002-2006, the number of vessels by gear type, size of vessels (tons), number of fishing days or days on the fishing grounds, total catch by species, and areas fished (names of seamounts) to the Interim Secretariat as soon as possible and no later than February 1, 2008. The Interim Secretariat will circulate the information received to the other States within 60 days of the date specified above, consistent with approved Interim Data Handling and Data Sharing Protocol. To support assessments of the fisheries and refinement of conservation and management measures, Participating States are to provide update information on an annual basis.

B. Collection of Information

(i) Collection of scientific information from each bottom fishing vessel operating in the area specified in paragraph 1.

- a. Catch and effort data
- b. Related information such as time, location, depth, temperature, etc.

(ii) As appropriate the collection of information from research vessels operating in the area specified in paragraph 1.

- a. Physical, chemical, biological, oceanographic, meteorological, etc.
- b. Ecosystem surveys.

(iii) Collection of Observer Data

When appropriate, duly designated observers from the flag state should collect information from fishing vessels. Participating States will report the results to the Interim Secretariat in accordance with Annex 4. Observers should collect data in accordance with Annex 5. The Interim Secretariat will compile this information on an annual basis and will make it available to the [Participating States].

C. Sharing of Information

All information shared by the Participating States will be done in accordance with the following provisions

- (i) The Participating State will establish a process governing the submission, management, sharing and access to information.
- (ii) The process will include provisions to ensure that the confidentiality of the information is maintained.
- (iii) The process will provide a balance among Participating States with regard to the benefits of data sharing.
- (iv) Information will be made available to the SWG for analyses and use in providing technical advice and guidance.

D. Data Analysis and Review

At SWG1 on 1 February 2007, a Work Plan was established (Attachment 2 of NWPBT/02/Rec), and at SWG2 on 25 October 2007, the Interim Data Handling and Data Sharing Protocols were agreed (Attachment 3 of NWPBT/03/Inf4). Also, at

SWG2, the implementation of the Work Plan was discussed and task allocation and a deadline were agreed, including the provisions of the work plan for identifying VMEs and assessing SAIs on VMEs.

8. Control of bottom fishing vessels

A. Participating States will exercise full and effective control over each of their bottom fishing vessels operating in the high seas of the Northwestern Pacific Ocean, including by means of fishing licenses, authorizations or permits, and maintenance of a record of these vessels will be ensured;

B. In accordance with article VI of the FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, 1993, collection and exchange of the following information with respect to each bottom fishing vessel entered in the record of 7(A) will be carried out ;

- (a) name of fishing vessel, registration number, previous names (if known), and port of registry;
- (b) previous flag (if any);
- (c) International Radio Call Sign (if any);
- (d) name and address of owner or owners;
- (e) where and when built;
- (f) length;
- (g) name and address of operator (manager) or operators (managers) (if any);
- (h) type of fishing method or methods;
- (i) gross register tonnage;
- (j) power of main engine or engines;
- (k) cubic meters of well volume.

C. To strengthen its control over bottom fishing vessels flying its flag, each Participating State will ensure that all such vessels operating in the high seas of the Northwestern Pacific Ocean be equipped with an operational vessel monitoring system no later than 31 December 2007, or earlier if so decided by the flag State.

9. Observers

The Participating States at the Third Inter-Governmental Meeting stressed the importance of a high level of observer coverage in order to obtain the most accurate and complete data and information possible on ongoing fishing activities.

In reviewing assessments on impacts of fishing activity on marine species or any VMEs, the presence of observers on board vessels should be a critical factor in assessing the accuracy and completeness of the data and information in support of such assessments.

[After December 31, 2008, any vessel authorized to continue fishing in the area [is advised to carry] [will carry] an observer on board.]

10. Secretariat function

For the purpose of facilitating implementation of this mechanism, Japan will take the role of Secretariat on an interim basis.

11. Other issues

These measures will be applied on a voluntary basis. Nothing in this mechanism affects or should be interpreted as affecting, the rights and obligations of States under international law including UNCLOS.

12. Implementation

The measures specified in Paragraph 4 will be effective upon adoption of this document. Unless specified otherwise, the remaining provisions will become applicable and operational no later than 31 December 2007.

Annex 1

Exploratory Fishery Protocol in the North Pacific Ocean

1. From 1 January 2009, all bottom fishing activities in new fishing areas or with bottom gear not previously used in the existing fishing areas, are to be considered as “exploratory fisheries” and to be conducted in accordance with this protocol.

2. Precautionary conservation and management measures, including catch and effort controls, are essential during the exploratory phase of deep sea fisheries. Implementation of a precautionary approach to sustainable exploitation of deep sea fisheries will include the following measures:

- i. precautionary effort limits, particularly where reliable assessments of sustainable exploitation rates of target and main by-catch species are not available;
- ii. precautionary measures, including precautionary spatial catch limits where appropriate, to prevent serial depletion of low-productivity stocks;
- iii. regular review of appropriate indices of stock status and revision downwards of the limits listed above when significant declines are detected;
- iv. measures to prevent significant adverse impacts on vulnerable marine ecosystems; and
- v. comprehensive monitoring of all fishing effort, capture of all species and interactions with VMEs.

3.. When a Participating State would like to conduct exploratory fisheries, it is to follow the following procedure:

(1) Prior to the commencement of fishing, the Participating State is to circulate the information and assessment in Appendix 1 to the members of the Scientific Working Group (SWG) for review and to all Participating States for information, together with the impact assessment. Such information is to be provided to the other members at least 30 days in advance of the meeting at which the information will be reviewed.

(2) The assessment in (1) above is to be conducted in accordance with the procedure set forth in “Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species (Annex 1 to the Interim Measures)”, with the understanding that particular care will be taken in the evaluation of risks of the significant adverse impact on vulnerable marine ecosystems, in line with the precautionary approach.

(3) The SWG is to review the information and the assessment submitted in (1) above in accordance with “SWG Assessment Review Procedures for Bottom Fishing Activities (Annex 2 to the Interim Measures).”

(4) The exploratory fisheries are to be permitted only where the assessment concludes that they would not have significant adverse impacts (SAIs) on marine species or any VME and on the basis of comments and recommendations of SWG. Any determinations, by any Participating State or the SWG, that the exploratory fishing activities would not have SAIs on marine species or any VME, will be made publicly available through the NWPBFO website.

4. The Participating State is to ensure that all vessels flying its flag conducting exploratory fisheries are equipped with a satellite monitoring device and have an observer on board at all times.

5. Within 3 months of the end of the exploratory fishing activities or within 12 months of the commencement of fishing, whichever occurs first, the Participating State is to provide a report of the results of such activities to the members of the SWG and all Participating States. If the SWG meets prior to the end of this 12 month period, the Participating State is to provide an interim report 30 days in advance of the SWG meeting. The information to be included in the report is Appendix 2.

6. The SWG is to review the report in 4 above, and decide whether the exploratory fishing activities had SAIs on marine species or any VME. The SWG then is to send its recommendations to the Inter-governmental Meeting on whether the exploratory fisheries can continue and whether additional management measures will be required if they are to continue. The Inter-governmental Meeting is to strive to adopt conservation and management measures to prevent SAIs on marine species or any VME. If the Inter-Governmental Meeting is not able to reach consensus on any such measures, each Participating fishing State is to adopt measures to avoid any SAIs on VMEs.

7. Participating States will only authorize continuation of exploratory fishing activity, or commencement of commercial fishing activity, under this protocol on the basis of comments and recommendations of the SWG.

Appendix 1

Information to be provided before exploratory fisheries start

1. A harvesting plan
 - Name of vessel
 - Flag state of vessel
 - Description of area to be fished (location and depth)
 - Fishing dates
 - Anticipated effort
 - Target species
 - Bottom fishing gear-type used
 - Area and effort restrictions to ensure that fisheries occur on a gradual basis in a limited geographical area.
2. A mitigation plan
 - Measures to prevent SAIs to VMEs that may be encountered during the fishery
3. A catch monitoring plan
 - Recording/reporting of all species brought onboard to the lowest possible taxonomic level
 - 100% satellite monitoring
 - 100% observer coverage
4. A data collection plan
 - Data is to be collected in accordance with “Type and Format of Scientific Observer Data to be Collected” (Annex 4 to the Interim Measures)

Appendix 2

Information to be included in the report

- Name of vessel

- Flag state of vessel
- Description of area fished (location and depth)
- Fishing dates
- Total effort
- Bottom fishing gear-type used
- List of VME encountered (the amount of VME indicator species for each encounter specifying the location: longitude and latitude)
- Mitigation measures taken in response to the encounter of VME
- List of all organisms brought onboard
- List of VME indicator species brought onboard by location: longitude and latitude

Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species

1. Introduction

Japan, the Republic of Korea, the Russian Federation and the United States of America (hereinafter called “Participating States”) have hereby established science-based standards and criteria to guide their implementation of United Nations General Assembly (UNGA) Resolution 61/105 and the interim measures adopted by the four countries in respect of bottom fishing activities in the North Western Pacific Ocean (NWPO). In this regard, these science-based standards and criteria are to be applied to identify vulnerable marine ecosystems (VMEs) and assess significant adverse impacts (SAIs) of bottom fishing activities on such VMEs or marine species and to promote the long-term sustainability of deep sea fisheries in NWPO. The science-based standards and criteria are consistent with the FAO International Guidelines for the Management of Deep-Sea Fisheries in the High Seas, taking into account the work of other RFMOs implementing management of deep-sea bottom fisheries in accordance with UNGA Resolution 61/105. The standards and criteria are to be modified from time to time as more data are collected through research activities and monitoring of fishing operations.

2. Purpose

(1) The purpose of the standards and criteria is to provide guidelines for each Participating State in identifying VMEs and assessing SAIs of individual bottom fishing activities¹ on VMEs or marine species in the high-seas area of NWPO (hereinafter called “the Area”)². Each Participating State, using the best information available, is to decide which species or areas are to be categorized as VMEs, identify areas where VMEs are known or likely to occur, and assess whether individual bottom fishing activities would have SAIs on such VMEs or marine species. The results of these tasks are to be submitted to and reviewed by the Scientific Working Group with a view to reaching a common understanding among the Participating States.

(2) For the purpose of applying the standards and criteria, the bottom fisheries are defined as follows:

- (a) The fisheries are conducted in the Area;
- (b) The total catch (everything brought up by the fishing gear) includes species that can only sustain low exploitation rates; and
- (c) The fishing gear is likely to contact the seafloor during the normal course of fishing operations

3. Definition of VMEs

(1) Although Paragraph 83 of UNGA Resolution 61/105 refers to seamounts, hydrothermal vents and cold water corals as examples of VMEs, there is no definitive list of specific species or areas that are to be regarded as VMEs.

(2) Vulnerability is related to the likelihood that a population, community or habitat will experience substantial alteration by fishing activities and how much time will be required for its recovery from such alteration. The most vulnerable ecosystems are those that are both easily disturbed and are very slow to recover, or may never recover. The vulnerabilities of populations, communities and habitats are to be assessed relative to specific threats. Some features, particularly ones that are physically fragile or inherently rare may be vulnerable to most forms of disturbance, but the vulnerability of some populations, communities and habitats may vary greatly depending on the type of fishing gear used or the kind of disturbance experienced. The risks to a marine ecosystem are determined by its vulnerability, the probability of a threat occurring and the mitigation means applied to the threat. Accordingly, the FAO Guidelines only provide examples of potential vulnerable species groups, communities and habitats as well as features that potentially support them (Annex 1).

(3) A marine ecosystem is to be classified as vulnerable based on its characteristics. The following list of

¹ “individual bottom fishing activities” means fishing activities by each fishing gear. For example, if ten fishing vessels operate bottom trawl fishing in a certain area, the impacts of the fishing activities of these vessels on the ecosystem are to be assessed as a whole rather than on a vessel-by-vessel basis. It should be noted that if the total number or capacity of the vessels using the same fishing gear has increased, the impacts of the fishing activities are to be assessed again.

² FAO statistical area No. 61 excluding those already covered by existing international fisheries management instruments (including bilateral agreements) and regional fisheries management organizations or arrangements, and closed high seas areas that are surrounded by the EEZ of a single Participating States

characteristics is used as criteria in the identification of VMEs.

(a) Uniqueness or rarity - an area or ecosystem that is unique or that contains rare species whose loss could not be compensated for by other similar areas. These include:

- (i) Habitats that contain endemic species;
- (ii) Habitats of rare, threatened or endangered species that occur in discrete areas;
- (iii) Nurseries or discrete feeding, breeding, or spawning areas

(b) Functional significance of the habitat – discrete areas or habitats that are necessary for the survival, function, spawning/reproduction or recovery of fish stocks, particular life-history stages (e.g. nursery grounds or rearing areas), or of rare, threatened or endangered marine species.

(c) Fragility – an ecosystem that is highly susceptible to degradation by anthropogenic activities

(d) Life-history traits of component species that make recovery difficult – ecosystems that are characterized by populations or assemblages of species with one or more of the following characteristics:

- (i) Slow growth rates
- (ii) Late age of maturity
- (iii) Low or unpredictable recruitment
- (iv) Long-lived

(e) Structural complexity – an ecosystem that is characterized by complex physical structures created by significant concentrations of biotic and abiotic features. In these ecosystems, ecological processes are usually highly dependent on these structured systems. Further, such ecosystems often have high diversity, which is dependent on the structuring organisms.

(4) Management response may vary, depending on the size of the ecological unit in the Area. Therefore, the spatial extent of the ecological unit is to be decided first. That is, whether the ecological unit is the entire Area, or the current fishing ground, namely, the Emperor Seamount and Northern Hawaiian Ridge area (hereinafter called “the ES-NHR area”), or a group of the seamounts within the ES-NHR area, or each seamount in the ES-NHR area, is to be decided using the above criteria.

4. Identification of potential VMEs

(1) Fished seamounts

(a) Identification of fished seamounts

It is reported that four types of fishing gear are currently used by the Participating States in the ES-NHR area, namely, bottom trawl, bottom gillnet, bottom longline and pot. A fifth type of fishing gear (coral drag) was used in the ES-NHR area from the mid-1960s to the late 1980s and is possibly still used by non-participating Participating States. These types of fishing gear are usually used on the top or slope of seamounts, which could be considered VMEs. It is therefore necessary to identify the footprint of the bottom fisheries (fished seamounts) based on the fishing record between 2002 and 2006. As of October 2008, the following seamounts have been identified as fished seamounts: Suiko, [Showa], Youmei, Nintoku, Jingu, Ojin, Northern Koko, Koko, Kinmei, Yuryaku, Kammu, Colahan, and C-H. Since the use of most of these gears in the ES-NHR area dates back to the late 1960s and 1970s, it is important to establish, to the extent practicable, a time series of where and when these gears have been used in order to assess potential long-term effects on any existing VMEs.

Fishing effort may not be evenly distributed on each seamount since fish aggregation may occur only at certain points of the seamount and some parts of the seamount may be physically unsuitable for certain fishing gears. Thus, it is important to know actual fished areas within the same seamount so as to know the gravity of the impact of fishing activities on the entire seamount.

Due consideration is to be given to the protection of commercial confidentiality when identifying actual fishing grounds.

(b) Assessment on whether a specific seamount that has been fished is VMEs

After identifying the fished seamounts or fished areas of seamounts, it is necessary to assess whether each fished seamount is VMEs or contains VMEs in accordance with the criteria in 3 above, individually or in combination using the best available scientific and technical information as well as Annex 1. A variety of data would be required to conduct such assessment, including pictures of seamounts taken by an ROV camera or drop camera, biological samples collected through research activities and observer programs, and detailed bathymetry map. Where site-specific information is lacking, other information that is relevant to inferring the likely presence of VMEs is to be used.

(2) New fishing areas

Any place other than the fished seamounts above is to be regarded as a new fishing area. If a Participating State is considering fishing in a new fishing area, such a fishing is to be subject to, in addition to these standards and criteria, an exploratory fisheries protocol to be developed separately.

5. Assessment of SAIs on VMEs or marine species

(1) Significant adverse impacts are those that compromise ecosystem integrity (i.e., ecosystem structure or function) in a manner that: (i) impairs the ability of affected populations to replace themselves; (ii) degrades the long-term natural productivity of habitats; or (iii) causes, on more than a temporary basis, significant loss of species richness, habitat or community types. Impacts are to be evaluated individually, in combination and cumulatively.

(2) When determining the scale and significance of an impact, the following six factors are to be considered:

- (a) The intensity or severity of the impact at the specific site being affected;
- (b) The spatial extent of the impact relative to the availability of the habitat type affected;
- (c) The sensitivity/vulnerability of the ecosystem to the impact;
- (d) The ability of an ecosystem to recover from harm, and the rate of such recovery;
- (e) The extent to which ecosystem functions may be altered by the impact; and
- (f) The timing and duration of the impact relative to the period in which a species needs the habitat during one or more life-history stages.

(3) Temporary impacts are those that are limited in duration and that allow the particular ecosystem to recover over an acceptable timeframe. Such timeframes are to be decided on a case-by-case basis and be on the order of 5-20 years, taking into account the specific features of the populations and ecosystems.

(4) In determining whether an impact is temporary, both the duration and the frequency with which an impact is repeated is to be considered. If the interval between the expected disturbances of a habitat is shorter than the recovery time, the impact is to be considered more than temporary.

(5) Each Participating State is to conduct assessments to establish if bottom fishing activities are likely to produce SAIs in a given seamount or other VMEs. Such an impact assessment is to address, *inter alia*:

- (a) Type of fishing conducted or contemplated, including vessel and gear types, fishing areas, target and potential bycatch species, fishing effort levels and duration of fishing;
- (b) Best available scientific and technical information on the current state of fishery resources, and baseline information on the ecosystems, habitats and communities in the fishing area, against which future changes are to be compared;
- (c) Identification, description and mapping of VMEs known or likely to occur in the fishing area;
- (d) The data and methods used to identify, describe and assess the impacts of the activity, identification of gaps in knowledge, and an evaluation of uncertainties in the information presented in the assessment
- (e) Identification, description and evaluation of the occurrence, scale and duration of likely impacts, including cumulative impacts of activities covered by the assessment on VMEs and low-productivity fishery resources in the fishing area;
- (f) Risk assessment of likely impacts by the fishing operations to determine which impacts are likely to be SAIs, particularly impacts on VMEs and low-productivity fishery resources (Risk assessments are to take into account, as appropriate, differing conditions prevailing in areas where fisheries are well established and in areas where fisheries have not taken place or only occur occasionally);
- (g) The proposed mitigation and management measures to be used to prevent SAIs on VMEs and ensure long-term conservation and sustainable utilization of low-productivity fishery resources, and the measures to be used to monitor effects of the fishing operations.

(6) Impact assessments are to consider, as appropriate, the information referred to in these Standards and Criteria, as well as relevant information from similar or related fisheries, species and ecosystems.

(7) Where an assessment concludes that the area does not contain VMEs or that significant adverse impacts on VMEs or marine species are not likely, such assessments are to be repeated when there have been significant changes to the fishery or other activities in the area, or when natural processes are thought to have undergone significant changes.

6. Proposed conservation and management measures to prevent SAIs

As a result of the assessment in 5. above, if it is considered that individual fishing activities are causing or likely to cause SAIs on VMEs or marine species, the Participating State is to adopt appropriate conservation and management measures to prevent such SAIs. The Participating State is to clearly indicate how

such impacts are expected to be prevented or mitigated by the measures.

7. Precautionary approach

If after assessing all available scientific and technical information, the presence of VMEs or the likelihood that individual bottom fishing activities would cause SAIs on VMEs or marine species cannot be adequately determined, Participating States are only to authorize individual bottom fishing activities to proceed in accordance with:

- (a) Precautionary, conservation and management measures to prevent SAIs;
- (b) Measures to address unexpected encounters with VMEs in the course of fishing operations;
- (c) Measures, including ongoing scientific research, monitoring and data collection, to reduce the uncertainty; and
- (d) Measures to ensure long-term sustainability of deep sea fisheries.

8. Template for assessment report

Annex 2 is a template for individual Participating States to formulate reports on identification of VMEs and impact assessment.

ANNEX 1 - EXAMPLES OF POTENTIAL VULNERABLE SPECIES GROUPS, COMMUNITIES AND HABITATS AS WELL AS FEATURES THAT POTENTIALLY SUPPORT THEM

The following examples of species groups, communities, habitats and features often display characteristics consistent with possible VMEs. Merely detecting the presence of an element itself is not sufficient to identify a VME. That identification is to be made on a case-by-case basis through application of relevant provisions of the Standards and Criteria, particularly Sections 3, 4 and 5.

Examples of species groups, communities and habitat forming species that are documented or considered sensitive and potentially vulnerable to deep-sea fisheries in the high-seas, and which may contribute to forming VMEs:	
a.	certain coldwater corals, e.g., reef builders and coral forest including: stony corals (scleractinia), alcyonaceans and gorgonians (octocorallia), black corals (antipatharia), and hydrocorals (stylasteridae),
b.	Some types of sponge dominated communities,
c.	communities composed of dense emergent fauna where large sessile protozoans (xenophyophores) and invertebrates (e.g., hydroids and bryozoans) form an important structural component of habitat, and
d.	seep and vent communities comprised of invertebrate and microbial species found nowhere else (i.e., endemic).

Examples of topographical, hydrophysical or geological features, including fragile geological structures, that potentially support the species groups or communities, referred to above:	
a.	submerged edges and slopes (e.g., corals and sponges),
b.	summits and flanks of seamounts, guyots, banks, knolls, and hills (e.g., corals, sponges, xenophyophores),
c.	canyons and trenches (e.g., burrowed clay outcrops, corals),
d.	hydrothermal vents (e.g., microbial communities and endemic invertebrates), and
e.	cold seeps (e.g., mud volcanoes, microbes, hard substrates for sessile invertebrates).

ANNEX 2 - TEMPLATE FOR REPORTS ON IDENTIFICATION OF VMEs AND ASSESSMENT OF IMPACTS CAUSED BY INDIVIDUAL FISHING ACTIVITIES ON VMEs OR MARINE SPECIES

1. Name of the Participating State
2. Name of the fishery (e.g., bottom trawl, bottom gillnet, bottom longline, pot)
3. Status of the fishery (existing fishery or exploratory fishery)
4. Target species

5. Bycatch species
6. Recent level of fishing effort (every year at least since 2002)
 - (1) Number of fishing vessels
 - (2) Tonnage of each fishing vessel
 - (3) Number of fishing days or days on the fishing ground
 - (4) Fishing effort (total operating hours for trawl, # of hooks per day for long-line, # of pots per day for pot, total length of net per day for gillnet)
 - (5) Total catch by species
 - (6) Names of seamounts fished or to be fished
7. Fishing period
8. Analysis of status of fishery resources
 - (1) Data and methods used for analysis
 - (2) Results of analysis
 - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
9. Analysis of status of bycatch species resources
 - (1) Data and methods used for analysis
 - (2) Results of analysis
 - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
10. Analysis of existence of VMEs in the fishing ground
 - (1) Data and methods used for analysis
 - (2) Results of analysis
 - (3) Identification of uncertainties in data and methods, and measures to overcome such uncertainties
11. Impact assessment of fishing activities on VMEs or marine species including cumulative impacts, and identification of SAIs on VMEs or marine species, as detailed in Section 5 above, Assessment of SAIs on VMEs or marine species
12. Other points to be addressed
13. Conclusion (whether to continue or start fishing with what measures, or stop fishing)

SWG Assessment Review Procedures for Bottom Fishing Activities

1. The SWG is to review identifications of VMEs and assessments of significant adverse impact on VMEs, including proposed management measures intended to prevent such impacts submitted by individual Members.
2. Participating States will submit their identifications and assessments to members of the SWG at least 21 days prior to the SWG meeting at which the review is to take place. Such submissions will include all relevant data and information in support of such determinations.
3. The SWG will review the data and information in each assessment in accordance with the Science-based Standards and Criteria for Identification of VMEs and Assessment of Significant Adverse Impacts on VMEs and Marine Species, previous decisions of the Inter-Governmental Meetings on Management of High Seas Bottom Fishing in the North Western Pacific Ocean, and the FAO Technical Guidelines for the Management of Deep Sea Fisheries in the High Seas, paying special attention to the assessment process and criteria specified in paragraphs 47-49 of the Guidelines.
4. In conducting the review above, the SWG will give particular attention to whether the deep-sea bottom fishing activity would have a significant adverse impact on VMEs and marine species and, if so, whether the proposed management measures would prevent such impacts.
5. Based on the above review, the SWG will provide advice and recommendations to the submitting Members on the extent to which the assessments and related determinations are consistent with the procedures and criteria established in the documents identified above; and whether additional management measures will be required to prevent SAIs on VMEs.
6. Such recommendations will be reflected in the report of the SWG meeting at which the assessments are considered.

FORMAT OF NATIONAL REPORT SECTIONS ON DEVELOPMENT AND IMPLEMENTATION OF SCIENTIFIC OBSERVER PROGRAMMES

Report Components

Annual Observer Programme implementation reports should form a component of annual National Reports submitted by members to the Scientific Working Group. These reports should provide a brief overview of observer programmes conducted in the NPRFMO/A area. Observer programme reports should include the following sections:

A. Observer Training

An overview of observer training conducted, including:

- Overview of training programme provided to scientific observers.
- Number of observers trained.

B. Scientific Observer Programme Design and Coverage

Details of the design of the observer programme, including:

- Which fleets, fleet components or fishery components were covered by the programme.
- How vessels were selected to carry observers within the above fleets or components.
- How was observer coverage stratified: By fleets, fisheries components, vessel types, vessel sizes, vessel ages, fishing areas and seasons.

Details of observer coverage of the above fleets, including:

- Components, areas, seasons and proportion of total catches of target species, specifying units used to determine coverage.
- Total number of observer employment days, and number of actual days deployed on observation work.

C. Observer Data Collected

List of observer data collected against the agreed range of data set out in Annex 1, including:

- Effort Data: Amount of effort observed (vessel days, net panels, hooks, etc), by area and season and % observed out of total by area and seasons
- Catch Data: Amount of catch observed of target and by-catch species, by area and season, and % observed out of total estimated catch by species, area and seasons
- Length Frequency Data: Number of fish measured per species, by area and season.
- Biological Data: Type and quantity of other biological data or samples (otoliths, sex, maturity, etc) collected per species.
- The size of length-frequency and biological sub-samples relative to unobserved quantities.

D. Tag Return Monitoring

- Number of tags returns observed, by fish size class and area.

E. Problems Experienced

- Summary of problems encountered by observers and observer managers that could affect the NPRFMO/A Observer Programme Standards and/or each member's national observer programme developed under the NPRFMO/A standards.

**NPRFMO/A Observer Programme
Draft Standards : Scientific Component**

TYPE AND FORMAT OF SCIENTIFIC OBSERVER DATA TO BE COLLECTED

A. Vessel & Observer Data to be Collected for Each 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) Beam (m).
 - o) Gross register tonnage (international tonnage).
 - p) Power of main engine(s) (kilowatts).
 - q) Hold capacity (cubic metres).
 - r) 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).
 - s) 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 (UTC).
 - b) Tow start time (UTC).
 - c) Tow end date (UTC).

- d) Tow end time (UTC).
- e) Tow start position (Lat/Lon, 1 minute resolution).
- f) Tow end position (Lat/Lon, 1 minute resolution).
- g) Type of trawl, bottom or mid-water.
- h) Type of trawl, single, double or triple.
- i) Height of net opening (m).
- j) Width of net opening (m).
- k) Mesh size of the cod-end net (stretched mesh, mm) and mesh type (diamond, square, etc).
- l) Gear depth (of footrope) at start of fishing (m).
- m) Bottom (seabed) depth at start of fishing (m).
- n) Gear depth (of footrope) at end of fishing (m).
- o) Bottom (seabed) depth at end of fishing (m).
- p) Status of the trawl operation (no damage, lightly damaged*, heavily damaged*, other (specify)). *Degree may be evaluated by time for repairing (<=1hr or >1hr)
- q) Duration of estimated period of seabed contact (minute)
- r) Intended target species.
- s) Catch of all species retained on board, split by species, in weight (to the nearest kg).
- t) Estimate of the amount (weight or volume) of all living marine resources discarded, split by species.
- u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught.
- v) Record of sensitive benthic species in the trawl catch, particularly vulnerable or habitat-forming species such as sponges, sea-fans or corals.

C. Catch & Effort Data to be Collected for Bottom Gillnet Fishing Activity

1. Data are to be collected on an un-aggregated (set by set) basis for all observed bottom gillnet sets.
2. The following data are to be collected for each observed bottom gillnet set:
 - a) Set start date (UTC).
 - b) Set start time (UTC).
 - c) Set end date (UTC).
 - d) Set end time (UTC).
 - e) Set start position (Lat/Lon, 1 minute resolution).
 - f) Set end position (Lat/Lon, 1 minute resolution).
 - g) Net panel (“tan”) length (m).
 - h) Net panel (“tan”) height (m).
 - i) Net mesh size (stretched mesh, mm) and mesh type (diamond, square, etc)
 - j) Bottom depth at start of setting (m).
 - k) Bottom depth at end of setting (m).
 - l) Number of net panels for the set.
 - m) Number of net panels retrieved.
 - n) Number of net panels actually observed during the haul.
 - o) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
 - p) An estimation of the amount (numbers or weight) of marine resources discarded, split by species, during the actual observation.
 - q) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught.
 - r) Intended target species.

- s) Catch of all species retained on board, split by species, in weight (to the nearest kg).
- t) Estimate of the amount (weight or volume) of all marine resources discarded* and dropped-off, split by species. * Including those retained for scientific samples.
- u) Record of the numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

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 (UTC).
 - b) Set start time (UTC).
 - c) Set end date (UTC).
 - d) Set end time (UTC).
 - e) Set start position (Lat/Lon, 1 minute resolution).
 - f) Set end position (Lat/Lon, 1 minute resolution).
 - g) Total length of longline set (m).
 - h) Number of hooks for the set.
 - i) Bottom (seabed) depth at start of set.
 - j) Bottom (seabed) depth at end of set.
 - k) Number of hooks actually observed during the haul.
 - l) Intended target species.
 - m) Actually observed catch of all species retained on board, split by species, in weight (to the nearest kg).
 - n) An estimation of the amount (numbers or weight) of marine resources discarded* or dropped-off, split by species, during the actual observation. * Including those retained for scientific samples.
 - o) Record of the actually observed numbers by species of all marine mammals, seabirds or reptiles caught (including those discarded and dropped-off).

E. Length-Frequency Data to Be Collected

1. Representative and randomly distributed length-frequency data (to the nearest mm, with record of the type of length measurement taken) are to be collected for representative samples of the target species and other main by-catch species. Total weight of length-frequency samples should be recorded, and observers may be required to also determine sex of measured fish to generate length-frequency data stratified by sex. The length-frequency data may be used as potential indicators of ecosystem changes (for example, see: Gislason, H. et al. (2000. ICES J Mar Sci 57: 468-475) Yamane et al. (2005. ICES J Mar Sci, 62: 374-379), and Shin, Y-J. et al. (2005. ICES J Mar Sci, 62: 384-396)).
2. The numbers of fish to be measured for each species and distribution of samples across area and month strata should be determined, to ensure that samples are properly representative of species distributions and size ranges.

F. Biological Sampling to be Conducted (optional for gillnet and long line fisheries)

1. The following biological data are to 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 (to the nearest mm), with record of the type of length measurement used.
 - c) Length and depth in case of North Pacific armorhead.
 - d) Sex (male, female, immature, unsexed)
 - e) Maturity stage (immature, mature, ripe, ripe-running, spent)
2. Representative stratified samples of otoliths are to be collected from the main target species and, time permitting, from other main by-catch species regularly occurring in catches. All otoliths to be collected are to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
3. Where specific trophic relationship projects are being conducted, observers may be requested to also collect stomach samples from certain species. Any such samples collected are also to be labelled with the information listed in 1 above, as well as the date, vessel name, observer name and catch position.
4. Observers may also be required to collect tissue samples as part of specific genetic research programmes implemented by the Scientific Working Group.
5. Observers are to be briefed and provided with written length-frequency and biological sampling protocols and priorities for the above sampling specific to each observer trip.

G. Data to be Collected on Incidental Captures of Protected Species

1. Flag states operating observer programs are to develop, in cooperation with the NPRFMO/A Scientific Working Group, lists and identification guides of protected species or species of concern (seabirds, marine mammals or marine reptiles) to be monitored by observers,.
2. The following data are to be collected for all protected species caught in fishing operations:
 - a) Species (identified as far as possible, or accompanied by photographs if identification is difficult).
 - b) Count of the number caught per tow or set.
 - c) Life status (vigorous, alive, lethargic, dead) upon release.
 - d) Whole specimens (where possible) for onshore identification. 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. The Scientific Working Group is to develop a guideline, species list and identification guide for benthic species (e.g. sponges, sea fans, corals) whose presence in a catch will indicate that fishing occurred in association with a vulnerable marine ecosystem (VME). All observers on vessels are to be provided with copies of this guideline, species list and ID guide.

2. For each observed fishing operation, the following data are to be collected for all species caught, which appear on the list of vulnerable benthic species:
 - a) Species (identified 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 fishing operation.
 - c) An overall estimate of the total quantity (weight (kg) or volume (m³)) of all invertebrate benthic species caught in the fishing operation.
 - d) Where possible, and particularly for new or scarce benthic species which do not appear in ID guides, whole samples should be collected and suitable 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:
 - 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)
 - i) Date and time of capture (UTC).
 - j) Location of capture (Lat/Lon, to the nearest 1 minute)
 - k) Animal length / size (to the nearest cm) with description of what measurement was taken (such as total length, fork length, etc).
 - 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. 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) Monitoring of Catches
- Record time, proportion of catch (e.g. proportion of trawl landing) or effort (e.g. number of hooks), and total numbers of each species caught.
 - Record numbers or proportions of each species retained or discarded.

c) Biological Sampling

- Length-frequency data for target species.
- Length-frequency data for main by-catch species.
- Identification and counts of protected species.
- Basic biological data (sex, maturity) for target species.
- Check for presence of tags.
- 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 monitoring of catches and biological sampling procedures should be prioritised among species groups as follows:

Species	Priority (1 highest)
Primary target species (such as North Pacific armorhead and splendid alfonsin)	1
Other species typically within top 10 in the fishery (such as mirror dory, and oreos)	2
Protected species	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/panels examined for species composition relative to the number of hooks/panels retrieved) 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 collected in accordance with the same coding specifications as specified in Annex 5 of the SPRFMO Data Standards.
2. Coordinated Universal Time (UTC) is to be used to describe times.
3. Degrees and minutes 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.