

**12<sup>th</sup> MEETING OF THE SCIENTIFIC COMMITTEE**

*30 September to 05 October 2024, Lima, Peru*

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**Report of the Working Group on Electronic Monitoring Standards**

*WGEMS*

**South Pacific Regional Fisheries Management Organisation**

**12th Meeting of the Scientific Committee**

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**Report of the Working Group on Electronic Monitoring Standards**

**WGEMS Co-Chairs**

**31 August 2024**

## **Report of the Working Group on Electronic Monitoring Standards**

### **Summary**

The purpose of this document is to seek feedback from the Scientific Committee and relevant Working Groups, on work undertaken to support the Commission adopting Minimum Standards for the use of Electronic Monitoring Systems (EMS) in SPRFMO Fisheries. This paper responds to the task in the Terms of Reference for the Ad-Hoc Working Group on Electronic Monitoring Standards (WGEMS) to present the draft standards to the 12th Meeting of the SC for endorsement. The full draft is not ready for endorsement, but the Co-Chairs wish to inform the SC of the progress of the WGEMS, seek its endorsement of key proposed elements and the objectives, purpose, and scope of the standards, as well as solicit advice and input on the work remaining to develop the standards.

This is a ‘Co-Chairs’ paper that reflects feedback received from many Member and Observer delegates over the past three months. Note that the draft (a) does not reflect the positions of each Member, CNCP, or Observer, as the WGEMS has not had the opportunity at that time to achieve resolution on those areas where differing initial positions were expressed; and (b) includes some [ ] and/or Co-Chair’s comments for areas where we believe that further discussion is warranted.

For the Scientific Committee the Co-Chairs would be grateful for feedback on any aspects of the paper, but in particular on:

- The Objectives, Purpose and Scope of the program;
- EM data requirements required to reflect the EM Program objectives. In particular, assistance or advice on determining what data elements currently collected by observers pursuant to CMM 02-2022 could feasibly be collected via EM, and what opportunities EM might provide to fulfill as yet unmet data needs of the SC and the Commission;
- The capacity and expertise for the SC to fulfill several proposed potential roles for the SC in reviewing Member and CNCP EM programs and their implementation.

The SC is invited to:

- Note this paper;
- Provide input on the appendices and advice on development of the EM minimum standards as requested in this document and otherwise as the SC finds appropriate;
- Provide any advice to the Commission on the proposed Objectives, Purpose, and Scope of the use of EM in SPRFMO, and any other elements of the work of the WGEMS to date as the SC deems appropriate.

### **Background**

The Ad-Hoc Working Group on Electronic Monitoring Standards (WGEMS) was established by the 12<sup>th</sup> Meeting of the SPRFMO Commission, and given the primary task of developing EM standards for SPRFMO fishing vessels, and charged with present the draft standards to the 12th Meeting of the

SC for endorsement. The motivation for this effort is rooted in a provision in CMM 18-2024 that allows for Members and CNCPs participating in the jumbo flying squid fishery to use electronic monitoring to fulfill a portion of monitoring obligations in that fishery upon adoption of standards for the use of EM in SPRFMO, as well as in the Terms of Reference for the WGEMS, which provide a broader mandate for it to develop EM standards applicable for all fishing vessels operating in the SPRFMO Convention Area.

The WGEMS has met in a virtual format three times, in May, July, and August of 2024. The reports of the first two meetings are provided as Appendix 1 and Appendix 2. The current Co-Chairs' paper draws on feedback received through these engagements.

### **Objective, Purpose, and Scope of EM in SPRFMO**

The text below conveys the intent of the paragraphs in the draft standards that lay out the objectives, purpose and scope of EM and EM standards for SPRFMO, but does not replicate them verbatim as some word choices remain under discussion. The current draft language, including comments and items in brackets, can be found in Appendix 3. The Co-Chairs of the WGEMS seek feedback from the SC on the proposed objectives, purpose and scope of EM in SPRFMO.

These are:

- That the use of EM in SPRFMO have the same general purpose as the regional observer programme, with an objective to enable collection, via Electronic Monitoring Systems (EMS), of verified catch and other data related to the conduct of SPRFMO fisheries in the SPRFMO area of competence, in order to facilitate the collection of verified scientific data and additional information related to fishing activities in the Convention Area and their impacts on the ecosystem, and also to support the functions of the Commission and its subsidiary bodies, including the CTC. (The WGEMS is deliberating whether to extend this to transshipments of fisheries resources caught in the convention area.)
- That the purpose of the standards shall be to establish minimum requirements for EM programs, EM systems, and EM data standards that shall apply when EM is used in SPRFMO fisheries to generate data to fulfill the data requirements of SPRFMO CMMs, and ensure that when EMS is used it is effective in achieving its intended purpose and generates data of equivalent rigor to data derived from the SPRFMO Observer Programme.
- That the implementation of EM in SPRFMO be optional at this time, and that the standards not create any independent obligation for Members and CNCPs to implement EM onboard their fishing vessels.
- That adherence to the standards be mandatory when Members or CNCPs use EM to fulfill SPRFMO data requirements. (The SC may consider if it has an opinion on whether voluntary data submissions not intended to fulfill a SPRFMO requirement should also adhere to the standards in order to assure data utility and confidence.)
- That the standards would create no independent ability to opt out of current observer requirements or other data submission requirements – any opportunities to do so would need to

flow from other decisions by the Commission, for example the provisions contained in paragraph 16 of CMM 18-2024.

### **Priorities for Further Development**

The WGEMS has been making progress on the main text of the draft standards, but several major elements require further work. One is to develop a reporting and assurance framework for the use of EM in SPRFMO, something the WGEMS participants have expressed an interest in, but that we have as yet been unable to discuss in any depth. We also have significant work remaining to complete the various planned annexes. The planned annexes are:

- ANNEX 1 – EMS terms and definitions
- ANNEX 2 – Minimum technical requirements, performance standards, camera view of fishing activities under coverage by EMS, and recommended configurations for EM equipment for each vessel type
- ANNEX 3 – Minimum data requirements for vessel type
- ANNEX 4 – Description of the EM Vessel Monitoring Plan (VMP)
- ANNEX 5 – Data Storage, Retention, Transmission, Retrieval, Review, and Reporting

The Draft Minimum Standards for the use of Electronic Monitoring Systems (EMS) in SPRFMO Fisheries, and a draft of Annex 1 is provided in Appendix 3. Note that these do not reflect an agreed position from the WGEMS but they do reflect significant input received. The other annexes still require development by the WGEMS. The Co-Chairs, on behalf of the WGEMS seek input from the SC on the content of all included materials, and on the development of the planned annexes, but in particular seeks advice or opportunities to collaborate on developing the minimum data requirements for vessel type that will make up Annex 3. The intent of the WGEMS is to adapt this from Annex 7, “Standard for Observer Data”, of CMM 02-2022, which must be refined by identifying the data elements that will be feasible for collection via EM. The data elements described in CMM 02-2022 Annex 7 cut across the areas of expertise of a number of SC working groups and efforts to adapt Annex 7 for use with EM would benefit from input from those working groups.

The Co-Chairs are interested in the possibility of the following collaborations between the WGEMS and other bodies to adapt the data elements described in CMM 02-2022 Annex 7 to EM:

- With the Data Working Group to identify elements of the catch and effort data, landing and port data that can be collected via EM;
- with the Deepwater Working Group on detection of fishing in association with VMEs;
- with the SC (or to an SC WG as the SC may deem more appropriate) to identify approaches to adapt data elements on incidental capture of species of concern and length frequency and biological sampling.

While the current intention of the Co-Chairs and view of the WGEMS is to develop minimum technical requirements and data fields for all gear types used in SPRFMO fisheries the Co-Chairs are also open to input from the SC on whether there are data needs/gaps for particular gear types or activities that the WGEMS should take into account and to possibly prioritize if time constrains lead the WGEMS to decide to take a step-wise approach to developing the content of annexes 2 and 3 in order to present core standards for priority gear types on an accelerated schedule.

The Co-Chairs also would like to remind the SC that the WGEMS is still open to new participants and would welcome robust participation as we work to complete the main text and develop the annexes.

### **Possible SC Roles in Implementing SRFMO EM Standards**

The Co-Chairs would like feedback from the SC on several potential roles the SC might play in implementing these standards, in particular with respect to SC capacity to take on the roles described.

- Reviewing initial submissions of EM Vessel Monitoring Plans (VMP) for vessels, or groups of vessels.
- Reviewing modifications to VMPs.
- Reviewing summary annual reports of EM program implementation.
- Receiving data submissions from Member and CNCP EM programs.
- Reviewing descriptions of Member EM programs as well as the implementation of those programs and, if appropriate, suggesting improvements and adjustments to such programmes to ensure that SRFMO scientific data collection requirements are met.

## **SPRFMO AD HOC WORKING GROUP ON ELECTRONIC MONITORING STANDARDS (WGEMS)**

### **Summary Report of Meeting 1**

*28 May 2024*

#### **1. Opening of the meeting**

The Co-Chairperson of the Working Group on Electronic Monitoring Standards (WGEMS), Mr Colin Brinkman (USA), opened and led the meeting, noting that the other Co-Chairperson, Mr Guillermo Moran (ECU), was present at the meeting as well.

Mr Brinkman invited each delegation to introduce themselves. A list of participants is available in Annex 1 of this document.

#### **2. Agenda adoption**

The draft agenda was circulated in advance and re-introduced by Mr Brinkman at the meeting. No changes were made, and the agenda was adopted (Annex 2).

#### **3. Review of Elements described in the ToR and related work in the other RFMOs**

Mr Brinkman provided a brief background of the Working Group and reviewed its objectives as per the Terms of Reference adopted by the Commission, highlighting that the primary objective of the group is to develop Electronic Monitoring Standards (EMS) for fishing vessels, to be presented for endorsement at the 2025 SPRFMO Annual Meeting. He also reviewed the elements set out by the Terms of Reference that should be considered in developing the Electronic Monitoring Standards.

The Co-Chairperson stated that an understanding of the Members/CNCPs' position on the purpose, objectives, and scope of the EM programme is required before moving forward to address more technical and structural issues; therefore, it was suggested that this first meeting focused on those three things, which will serve as a foundation for the remainder of the group's work.

Mr Brinkman presented a high-level overview of how EM programmes were structured in other Regional Fisheries Management Organisations (RFMOs), introducing the programme structure of IOTC (voluntary, national standards), ICCAT (voluntary, national standards), IATTC (under discussion, contemplating interim standards for national programmes and considering a mandatory regional programme in the longer term).

Then referring to the circulated discussion paper drafted by the Co-Chairpersons of the WGEMS (Annex 3), Mr Brinkman brought attention to the questions and invited participants to reflect upon them and discuss:

- Do we envision a regional EM program or a collection of national EMS programs?
- How do we envision EM in SPRFMO will relate to the observer program and data standards?
- Should the EM standards we develop be mandatory or voluntary?
- Which fisheries should the standards cover?
- What role do we envision for the Secretariat with respect to information collected via EMS?
- Do you have any other thoughts on the objectives, purpose, and scope of EMS in SPRFMO?

Co-Chairperson Brinkman highlighted the importance of noting the difference between a regional EM programme and a collection of national programmes operating upon minimum standards and invited participants to reflect upon which they envision the Commission should adopt. He also noted the limited size and capacity of the SPRFMO Secretariat, and referred to the role Members expected the Secretariat should play in the collection and analysis of the data collected via EM.

Chile agreed that this meeting should focus on the objective, purpose, and scope of the EM programme, which will then allow to answer the more technical questions.

In response to the discussion questions, China suggested that the EM programme should be embedded within the Observer Programme of each country/delegation and accredited by the Commission; therefore, it should be a national programme rather than regional programme, and that the data collected should be reported to the SC's purpose. China also suggested the data collected via EM by the Members should meet the minimum standards as adopted by the Commission. Regarding the voluntary or compulsory nature of the EM programme, China stated that it should depend on the circumstances, e.g., scientific data may be voluntary but cameras and other elements of EM should be mandatory, as in ICCAT. Regarding the fisheries that should be covered by EM, China stated that it should cover all the fisheries but probably the types of fishing vessels should be clarified to include also carrier vessels. Regarding the role of the Secretariat, China expressed that, as with the Observer Programme, the Secretariat should receive the data from the Members and then coordinate its use and analysis.

Mr Brinkman presented the text (5 paragraphs) drafted by the Co-Chairpersons on the Objective, Purpose and Scope of the SPRFMO EM Standards, which is largely based upon IOTC and ICCAT documents, adjusted to fit the SPRFMO context, and invited participants to respond to this draft.

The Objective, Purpose, and Scope of the EM Standards as drafted by the Co-Chairpersons of the Working Group in the discussion paper read:

- 1. The objective of the SPRFMO Electronic Monitoring Standards is to enable collection, via Electronic Monitoring Systems (EMS), of verified catch and other data related to the conduct of SPRFMO fisheries in the SPRFMO area of competence in order to meet the requirements of the SPRFMO Observer Program.*
- 2. The purpose of these standards is to establish minimum program requirements and technical standards and specifications for EMS used in SPRFMO fisheries to meet the SPRFMO Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022) and ensure that when EMS is used it is effective in achieving its intended purpose.*
- 3. Notwithstanding paragraphs 1 and 2, the implementation of EMS is optional, and these standards do not create any independent obligation for Members and CNCPs to implement EMS onboard their fishing vessels.*
- 4. Members and CNCPs that implement EMS in their fisheries pursuant to SPRFMO CMMs shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.*
- 5. Unless otherwise decided by the Commission, Members and CNCPs shall ensure that they continue to meet the human observer coverage required in accordance with the relevant CMMs, and if they choose to implement EMS in accordance with these standards for scientific purposes, it shall be used to complement the required level of human observer coverage and the required tasks to be performed by these human observers.*

China expressed general support for the drafted objective but would like to add an explicit wording stating that data collected via EM will be used for scientific purposes and monitoring of the fisheries as well, complementing the data collected via the Observer Programme.

Chile pointed out that further discussion to specify the type of data that can be collected via EM is required, indicating that ideally the type of data to be collected should be decided on a fishery-by-fishery basis.



PEW highlighted the importance of defining and agreeing upon terminology to avoid confusion; for example, electronic monitoring programme (overall framework for EM) versus electronic monitoring system (the implementing physical components [cameras, devices, EM centre, etc.]) versus electronic monitoring standards (rules, requirements, roles, responsibilities involved in implementing the EMS).

The United States expressed support of China's suggestion of pulling the Objective wording from CMM 16 *Observer Programme* to use as the objective of Electronic Monitoring programme, as both data collection methods would be used for the same purpose.

The European Union supported the comments from the United States and China regarding the links between the EM programme and the Observer Programme, as they both have similar objectives but noted that the EM cannot collect all the data that the human observers can.

Korea sought clarification for the section of paragraph 4 that reads "pursuant to SPRFMO CMMs..." of the text drafted by the Co-Chairpersons and suggested to modify the wording as follows:

*4. Members and CNCPs that implement EMS in their fisheries in order to collect and submit data as required by certain SPRFMO CMMs shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.*

Korea also sought clarification about paragraph 5, particularly when it refers to "complement the required level of human observer coverage..." indicating that in their understanding the term means that EM would be used as an alternative to human observers and some vessels may want to achieve required coverage levels by using EM only, so if that understanding is correct, the Observer coverage can be achieved by a combination of human observer and EM; however if that is not correct and the word "complement" implies that EM needs to be installed in vessels in addition to human Observer, then that's likely to be problematic.

Mr Brinkman thanked Korea's drafting of paragraph 4 as it conveys the same meaning in a clearer manner.

Mr Brinkman also provided clarification regarding the term "complement" in paragraph 5. He explained that currently there is no mention of Electronic Monitoring in any of the SPRFMO CMMs but CMM 18 *Squid*, which allows for EM to meet various thresholds of observation depending upon the year and the adoption of standards by the Commission, so the premise would be that this wording would not provide additional requirements or alternatives; therefore, if the Squid CMM requires a certain level of human observer coverage and allows a certain degree of substitution with EM, that's what applies –there is no independent obligation imposed or independent opt-out by using this wording. Adding EM on top of human observer coverage is allowable, but it's not a requirement imposed by the drafted text of paragraph 5. He noted that the intent behind the draft is evidently not clear enough and will require improvement.

Chinese Taipei thanked the Co-Chairpersons' for the drafted text and expressed its agreement that the EM should be complementary to human observation, serving the same purpose, noting that paragraph 2 of the drafted text refers to CMM 02 Data Standards and that EM has limitations that would not allow to collect all the data required under CMM 02, therefore inviting further discussion regarding the phrase "to meet the SPRFMO Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022)..."

Echoing interventions from other delegations regarding the limitations of EM and upon the premise that EM cannot collect all the data required by CMM 02, China proposed to remove the reference to CMM 02 Data Standards from paragraph 2 of the text drafted by the Co-Chairpersons.

On the same discussion around the reference to CMM 02 Data Standards in paragraph 2, the United States noted that the purpose of the EM Standards is to implement the requirements of the CMMs, which could be an alternative way to phrase it rather than referring to CMM 02 specifically.

Paragraph 2 of the Chairpersons' proposed EMS Standards was modified as follows:

*2. The purpose of these standards is to establish minimum [requirements for EM programs, EM systems, and EM data standards] [program requirements and technical standards and specifications] for EMS used in SPRFMO fisheries [to meet the SPRFMO CMMs] ~~Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022)~~ and ensure that when EMS is used it is effective in achieving its intended purpose.*

Regarding the voluntary nature of the EM Standards, the meeting modified the proposed paragraph 3 and 4 as follows, noting some Members required further reflection upon it:

*3. Notwithstanding paragraphs 1 and 2, the implementation of EMS is optional, and these standards do not create any independent obligation for Members and CNCPs to implement EMS onboard their fishing vessels.*

*4. Members and CNCPs that implement EMS in their fisheries pursuant to SPRFMO CMMs shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.*

In regard to the paragraph 4, Chile asked how the delegations are to make sure their programmes meet the minimum standards, and whether an accreditation similar to Observer Programme accreditation will be an option. Chile noted that even though this instance is likely not the right one to discuss this matter, it is certainly an important consideration. External/third party accreditation was brought up as an option to explore in a future instance.

The European Union mentioned there may be implications if it's decided that the Scientific Committee review the information prior to the Commission, or if a third-party accreditation would be preferred, and the impact on Commission and Secretariat workload.

Mr Brinkman supported the notion that the SC has expertise to offer in this aspect and can be an avenue for additional or primary vetting of programme implementation with respect to the standards developed by this WG.

China referred to the process in ICCAT where the SC carries out accreditation process to review whether the EM programmes of Members and CNCPs meet the minimum standards and noted that this can be burdensome for the Commission, so having the support of the SC in doing an initial accreditation could be helpful.

Resource allocation was brought up by Co-Chairperson Brinkman, indicating that it would be a consideration regardless of the mechanism agreed upon for external verification of EM programmes, because the SC has no capacity to take on new work that would compete with existing priorities; the financial implications for the Commission and Member contributions should be elements to also be considered.

Ecuador requested that specific language be included in the body of paragraph 4 regarding the intent for data collected from EM to meet the same standards and have the same validity and reliability as the data coming from the Observer Programme.

Regarding paragraph 5, the discussion touched on the fact that it does not adapt properly to the Squid fishery.

*5. Unless otherwise decided by the Commission, Members and CNCPs shall ensure that they continue to meet the human observer coverage required in accordance with the relevant CMMs, and if they choose to implement EM in accordance with these standards for scientific purposes, it shall be used to complement the required level of human observer coverage and the required tasks to be performed by these human observers."*

Mr Brinkman pointed out that as drafted, paragraph 5 does not accurately reflect the complexity of the situation with respect to the Squid CMM, but that this model text intends to communicate the concept that the human observer coverage level is what it is as mandated in whichever relevant CMM, so if there are CMMs that enable Member and CNCPs to use EM to substitute human observers, the numerical coverage required resides within those CMMs not in this paragraph/document. Brinkman invited participants to reflect upon that concept rather than focusing on the form and wording of the text. He acknowledged that the text will need further work so it is understandable and clear for everyone that the point was that EM does not serve to provide an opt-out of human observer coverage that doesn't exist already, and that if Members and CNCPs want to implement EM, they can do

so in order to complement their required levels of observer coverage, e.g., in the jack mackerel fishery, there is no language that allows substitution of observers with EM –it would be allowable for Members and CNCPs to implement EM in order to enhance coverage in that fishery, and that is all that the text in paragraph 5 intends to communicate.

Korea requested that a summary report be circulated with the Chairpersons' intent in paragraph 5.

The European Union supported the Chairpersons' view that if there is no mention of the possibility of substituting human observer coverage, with EM, as it's done in the squid fisheries, then the observer coverage should remain as it stands.

The United States is not 100% convinced that this paragraph adds anything that is not covered by the prior paragraphs, indicating that perhaps there is no need to include it because it's rather confusing.

PEW noted that the text, as it stands, does limit the EM standards to the use of scientific purposes only and enquired whether this was intended or if it was an artifact of where it was modelled from. Brinkman clarified it was indeed an artifact.

The Chairpersons confirmed, in response to Korea, that a summary report will be circulated; he also clarified to the United States that even if strictly speaking the paragraph is not required and the drafting has made it seem irrelevant, it is important to make it absolutely clear that this document (now five paragraphs) is not intended to provide an avenue to replace human observers when it hasn't been authorised elsewhere.

Brinkman stressed the intent of the Chairpersons in drafting the five paragraphs and summarised the core principles as:

- Framework for an Electronic Monitoring programme in SPRFMO aimed at:
  - meeting the same objectives as the SPRFMO Observer Programme;
  - establishing minimum requirements for implementation of EM in SPRFMO fisheries; and,
  - providing avenues to ensure that EM is effective in achieving its intended purpose when used.
- Intent that the EM be voluntary –the standards do not create an independent obligation to implement EM systems on any Members or CNCP vessels.
- Implementation of EM in fisheries to fulfil SPRFMO data requirements entails an obligation to follow the EM standards
- This document creates no independent opt out, no ability to substitute EM for human observer coverage, unless otherwise decided by the Commission.

#### **4. Discuss a draft workplan and Meeting schedule for the WGEMS**

The Co-Chairperson referred to the future workplan for the WGEMS.

Ideally the group would be submitting a document to the annual meeting of the Scientific Committee, deadline for which is 31 August, and noting this, he suggested that two further meetings should be held before that date – one to discuss institutional structure (external verification, data handling in terms of submission of vessel monitoring plans to the Secretariat, etc.) in early July, and another one to address the technical aspects (camera placement, location, data types, data storage on vessels) in early August. Options will be circulated via the Secretariat and efforts will be made to not schedule meetings that could clash with other RFMO meetings as well as to share the burden of the inconvenient meeting times.

Mr Brinkman noted that the Co-Chairpersons would be circulating materials for review, input and discussion in advance of each meeting. He also pointed out that meetings can be held in the margins of the SC meeting.

Mr Brinkman also noted that there are some Members who have domestic programmes for electronic monitoring, and it would be great to explore the possibility of a more formal knowledge exchange with any Members that have domestic experience in fisheries that are of priority importance to SPRFMO in this electronic monitoring work.

## Annex 1- List of Participants of the WGEMS meeting 1

### Co-Chairpersons of the WGEMS

Colin Brinkman  
Guillermo Moran

### Australia

Adam Camillieri  
Jacob Tapp

### Belize

Ian Constantino

### Chile

Luis Cocas  
Jaime Gatica  
Maria Olga Paredes  
Nicole Mermoud  
Valentina Muñoz  
Paola Arroyo  
Raúl Saa  
Carlos Ahumada  
Pablo Ortiz

### China

Gang Li  
Ce Liu  
Wang Meng

### Cook Islands

Saiasi Sarau

### Ecuador

Jose Isidro Andrade Vera  
Rebeca Espinoza  
Maria Belen Montesinos (Interpreter)

### European Union

Benoît Marcoux  
Bleijenberg, Jasper

### Korea

Ilkang Na  
Hyejin Song  
Soomin Kim  
JUNG  
Shin Sanggyu  
Lee Jooyoun

### New Zealand

NZL-Duncan McDonald  
Michaela McGlade

### Panama

Genesis Garcia  
Yinibeth Cristina Nunez  
Laura Molina Perez

### Peru

Jose Franco Paolo Loayza Quipuzco  
Antonino Moreno  
Jose Luis Herrera Afa (Guest)

### Chinese Taipei

Mingfen Wu  
Han-ching Chuang  
Shih-Chin Chou  
Shih-Ming Kao

### United States

Elizabeth O'Sullivan  
Laura Cimo  
Emily Reynolds  
Samantha Emmert  
Rachel Ryan

### IATTC

Marlon Roman (External)

### Global Fishing Watch

Nate Miller

### PEW

Claire van der Geest  
James Gibbon

### Secretariat

Susana Delgado Suárez  
Bernard Vigga  
Randy Jenkins

## Annex 2- WGEMS meeting 1 Agenda

1. Opening of the meeting
2. Agenda adoption
3. Review of elements described in the TOR and related work in other RFMOs
4. Discuss a draft workplan
5. Meeting schedule for the WGEMS

## Annex 3- WGEMS meeting 1 Discussion Paper

### Introduction:

At the 12<sup>th</sup> Commission meeting in February, the Commission established the Working Group on Electronic Monitoring Standards (WGEMS), “with the aim of strengthening and improving monitoring systems and enhancing the collection and reporting of data for fisheries of SPRFMO resources.”

The terms of reference (TOR) for the WG establish that the primary objective of the Working Group is to develop EM standards for fishing vessels to be presented for endorsement at the 2025 SPRFMO annual meeting, and that the scope of our work, “shall [be to] develop EM standards applicable to all fishing vessels flying the flag of a Member or Cooperating non-Contracting Party (CNCP) fishing for fisheries resources in the Convention Area.”

### Activities:

The TOR also provide that in developing the EM standards, the group should consider the following elements:

- Institutional structure and management of the EM programme: objectives of the programme, scope of the fleets, data collection and review coverage, roles and responsibilities of members, specifications and procedures, timeframes for implementation, accreditation of vendors, data confidentiality and access and use, coordination, observer training, cost and financial considerations, etc...
- EM Data Standards: minimum requirements for EM system and equipment, EM data collection and storage, EM data transfer logistics, EM data analysis and submission, EM maintenance and functioning, EM data validation and quality control, roles of EM users, including the collection of minimum data requirements, etc...
- EM related terms and definitions
- Complementarity with CMMs 02-2022 and 16-2023
- Identification of mandatory data under CMM 02-2022 which cannot be collected through the means of an EM System
- Flexibility of the EM minimum standards to account for future technological advances.
- Advice on necessary amendments to current CMMs to account for the use of EM.

**We propose that we focus in this first meeting on the objectives, purpose, and scope of the program, which will serve as a foundation for the remainder of our work.**

We propose some questions related to this text to generate discussion:

- Do we envision a regional EM program or a collection of national EMS programs?
- How do we envision EM in SPRFMO will relate to the observer program and data standards?
- Should the EM standards we develop be mandatory or voluntary?
- Which fisheries should the standards cover?
- What role do we envision for the Secretariat with respect to information collected via EMS?
- Do you have any other thoughts on the objectives, purpose, and scope of EMS in SPRFMO?

For your consideration, and to generate reactions and discussion, we present a Co-Chairs’ draft statement of the objective, purpose, and scope of EMS in SPRFMO that addresses a number of the questions above.

## Co-Chairs' Draft Objective, Purpose, and Scope of SPRFMO EMS Standards:

- 1. The objective of the SPRFMO Electronic Monitoring Standards is to enable collection, via Electronic Monitoring Systems (EMS), of verified catch and other data related to the conduct of SPRFMO fisheries in the SPRFMO area of competence in order to meet the requirements of the SPRFMO Observer Program.*
- 2. The purpose of these standards is to establish minimum program requirements and technical standards and specifications for EMS used in SPRFMO fisheries to meet the SPRFMO Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022) and ensure that when EMS is used it is effective in achieving its intended purpose.*
- 3. Notwithstanding paragraphs 1 and 2, the implementation of EMS is optional, and these standards do not create any independent obligation for Members and CNCPs to implement EMS onboard their fishing vessels.*
- 4. Members and CNCPs that implement EMS in their fisheries pursuant to SPRFMO CMMs shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.*
- 5. Unless otherwise decided by the Commission, Members and CNCPs shall ensure that they continue to meet the human observer coverage required in accordance with the relevant CMMs, and if they choose to implement EMS in accordance with these standards for scientific purposes, it shall be used to complement the required level of human observer coverage and the required tasks to be performed by these human observers.*

## Annex 4 – Rev 1 of Co-Chairs’ Draft Objective, Purpose, and Scope of SPRFMO EMS Standards:

1. The objective of the SPRFMO Electronic Monitoring Standards is to enable collection, via Electronic Monitoring Systems (EMS), of verified catch and other data related to the conduct of SPRFMO fisheries in the SPRFMO area of competence in order to ~~meet the requirements of the SPRFMO Observer Program~~, facilitate the collection of verified scientific data and additional information related to fishing activities in the Convention Area and its impacts on the ecosystem, and also to support the functions of the Commission and its subsidiary bodies, including the CTC.

2. The purpose of these standards is to establish minimum [program requirements and technical standards and specifications] [requirements for EM programs, EM systems, and EM data standards] for EMS used in SPRFMO fisheries to meet the [SPRFMO Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022)] [data requirements of SPRFMO CMMs] and ensure that when EMS is used it is effective in achieving its intended purpose [and generates data of equivalent rigor to data derived from the SPRFMO Observer Programme].

3. Notwithstanding paragraphs 1 and 2, the implementation of EMS is optional, and these standards do not create any independent obligation for Members and CNCPs to implement EMS onboard their fishing vessels.

4. Members and CNCPs that implement EMS in their fisheries ~~pursuant to SPRFMO CMMs in order to collect and submit data [to meet the data requirements of SPRFMO CMMs]~~ shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.

5. Unless otherwise decided by the Commission, Members and CNCPs shall ensure that they continue to meet the human observer coverage required in accordance with the relevant CMMs[, and if they choose to implement EMS in accordance with these standards ~~for scientific purposes~~ to meet the data requirements of SPRFMO CMMs, it shall be used to complement the required level of human observer coverage and the required tasks to be performed by these human observers].



## SPRFMO WG on Electronic Monitoring Standards –meeting 2

(9-10 July 2024, via Zoom)

### Summary Report

#### 1. Opening of the meeting

The Co-Chairperson Colin Brinkman (USA) opened the meeting, acknowledging the participation of Co-Chairperson Guillermo Moran (ECU), and invited introductions from participating delegations. A list of participants is available in Annex 1 of this document.

#### 2. Agenda adoption

The agenda was adopted and is available in Annex 2.

#### 3. Institutional and administrative elements of the Electronic Monitoring minimum standards

Mr Brinkman clarified that the text that had been circulated was outdated and that the actual new draft text would be shared on screen and circulated later.

The meeting went on to discuss the questions posed by the Co-Chairs in advance of the meeting:

- a. *Do we want to develop distinct recommendations for configurations of EM equipment for different vessel types?*
- b. *If so, which types? Do we want to prioritise certain vessel types and develop the requirements for others later, as the need arises?*
- c. *How do we integrate carrier vessels into the standards? What activities would we want EMS to record on carrier vessels?*
- d. *What authority/ies should review and approve vessel monitoring plans? Flag? Commission? SC? CTC? WGEMS? Some combination?*
- e. *Do we envision an ongoing role for the WGEMS after adoption of the standards, perhaps to review VMPs or implementation of Member EMS programmes, or should it dissolve?*

#### 4. Co-Chairs' Draft Minimum EM Standards in SPRFMO text

##### a. Objective, Purpose and Scope

The discussion focused on potential edits to the new “Co-Chairs' Draft Minimum Standards for the use of Electronic Monitoring Systems (EMS) in SPRFMO fisheries” text, which was displayed on screen, to improve clarity and internal consistency, with some members expressing reservations about the feasibility of electronic monitoring (EM) to capture specific data.

The United States provided suggestions to modify the language of paragraphs 2 and 4 of the Objective, Purpose and Scope section of the Co-Chairs' draft, to improve clarity and consistency.

High Seas Fisheries Group referred to paragraph 5 and commented specifically regarding the advantage of EM systems and how they can free up human observer to gather information that humans do better than a camera and that the wording should not be lost/diluted in this paragraph.

Co-Chairperson Brinkman noted that this was a good consideration for the Commission and subsidiary bodies, but pointed out that at the previous WGEMS meeting, wording was agreed for this paragraph in a way that it does not carve out scenarios in which EM might substitute human observers.



China commented on the bracketed text in paragraphs 2 and 5, with a request to have some wording regarding the type of data that could be collected by EM and add some wording specifying that complementary technology can be used to collect data that is hard for EM to collect, for example vessel length, master's name, and some biological data of the catch --so in general to have some language that lets the EM to generate data equivalent to the human observer.

The United States agreed with China, and referred to CMM 02-2022, pointing out that much of it refers to the items that don't lend themselves to camera data collection, and wondered whether adding some language in along the lines of "where appropriate...".

Co-Chair Brinkman pointed out that, as agreed at the previous WGEMS meeting, the intention in this text to provide some guidance to the SC requesting their advice on what data fields might be relevant for collection via EM and which would require human observers. He pointed out that there is an annex envisioned in the Minimum Standards document, which would have minimum data requirements by vessel type, noting that possibly part of the issue is that currently there is not yet a specific place to refer to where all those decisions which need to be made have been made. He suggested to include general language in paragraph 2 referring to the Annex which will contain that information (currently annex 3 of the draft), noting that in the existing data standards, none of the CMM 02 Annexes will fit perfectly with any EM system that we might implement in SPRFMO. And so, searching for a place to refer to here in paragraph 2 early in the document, that doesn't exist yet, may be the source of our problem.

United States and China agreed that paragraph 2 should be kept general and then the annex later should specify what type of data should be collected via EM as required by the fishery. The text was left to be reviewed offline and circulated to the WG after the meeting.

#### **b. EMS Minimum Standards and Minimum Data Fields**

Co-Chair Brinkman then moved on to the section *EMS Minimum Standards and Minimum Data Fields*, apologising for having circulated an outdated version that did not contain the changes displayed on screen, and suggested that, in order for delegations to be able to digest these suggested changes, this section could be deferred to be addressed at the next meeting of the WG.

In reference to the minimum standards, Pew commented that, in their view and experience, having rigid specifications like camera placement or camera view can hinder the development of EMS systems, because technology (cameras, quality, and other technical abilities) changes very quickly; therefore, locking these technical aspects probably is not the most efficient way of doing it. The focus, he suggests, should be on the type of data that needs to be collected, and then letting flags, vessels, and their service providers figure out the best way to do it. Pew suggested the Commission to not be prescriptive when it comes to these technical specifications.

HSFG supported Pew's comments and referred to paragraph 6, noting that EMS system shut down in vessels is common, so suggested adding some wording regarding a requirement for independent reporting system to monitor the operation of the EM system.

#### **c. Other Programme Requirements section.**

##### **i. Vessel Monitoring Plan (VMP)**

Co-Chairperson Brinkman posed questions to the meeting including: "*if we were to adopt a requirement for vessel monitoring plans, which has been a common requirement for other organisations that have implemented EMS minimum standards, what authority or entity would review and approve the vessel monitoring plans?*".

The United States suggested that the VMP is a flexible instrument that can be tailored to each vessel, but it would be positive to agree on minimum elements that could be included in such a plan, e.g., where the cameras go, and after that minimum level is approved, then flags can tailor it to their specific vessels.



China highlighted their need and request to have distinguished recommendations for configurations of EM requirements for different types of vessels, in particular squid fishing vessels as well as patrol vessels and other fisheries, which cannot meet observer coverage by human observers. Additionally, China expressed their view that the authorities responsible for reviewing and approving the VMPs should be the Flag State authority. China also pointed out that discussions around the role and future of the WGEMS should be held at the Commission when the Electronic Monitoring Standards are adopted. Finally, in reference to the VMP, China indicated that instead of each vessel, the plan should rather be developed for each type of vessel.

Co-Chair Brinkman agreed that it makes sense to provide VMPs for vessels of the same configuration, e.g., same gear type, all squid jiggers, all long line vessels, all long line vessels of a certain size, or all squid jiggers of a certain size, to be covered by the same plan, if that's what everyone decides. Text to express this intent was added in brackets.

Chile supported the idea that the VMP should be developed by the Flag State and raised the idea that the Commission or the WGEMS should be responsible for approving it. Chile also expressed their view that, once approved, the plan should not be modified unless approved by the Commission or the WGEMS.

The United States supported Chile's statement the Flag State should develop the VMP, but it shouldn't be the Flag State who approves it; rather they should submit it to the decided-upon entity for approval (i.e., Secretariat, third-party accreditation provider, etc).

Ecuador pointed out that paragraph 9 is rather general when it comes to longliners (tuna and swordfish fisheries) and can be confused with what other Commissions (IATTC and WCPFC) are doing already, so there should be some wording to signal that if longliners are covered, then it should be made clear in which fishery they would be operating. Ecuador also expressed agreement with Chile and the United States' comments regarding the Commission or a third-party being responsible for approving the VMPs.

Co-Chair Brinkman clarified that the only vessels to which the SPRFMO data standards would apply are vessels fishing in SPRFMO with approved gear by those vessels.

The European Union expressed support for validation by some committees or subsidiary bodies of the Commission, knowing that there should be a technical input from those that can assess whether the VMP are satisfactory in the way they collected data. So overall, their preference would be to align with what is done already; the SC should review it and perhaps CTC should give some advice.

Even though the bracketed text addresses the concern expressed by Chile regarding VMPs requiring approval for review, Co-Chairperson Brinkman asked the group to make more specific comments and text contributions, e.g., if the procedure were for a vessel monitoring plan to receive some sort of endorsement from the commission, would it be sufficient for modification of the vessel monitoring plan to be communicated to the commission, or would it then need to be re-approved?

Chile suggested adding wording along the lines of "And any proposal of modification of the VMP should be proposed to the commission or scientific committee or any other authority for approval". The text was inserted.

Following from Chile's intervention, China expressed their view that if the new modification will not impact negatively the ability to collect the data via EM, a simple notification to the COMM/CTC/SC; however, if the modification will negatively impact the performance of the EM, then it should be approved by the COMM/CTC/SC.

HSFG expressed agreement with China's comment and added that as expressed by PEW, it would be counterproductive if we had to go back to COMM every time we want to change or upgrade the technology, given the pace at which technology changes. Ideally, we set minimum standards, but we do not set the technology required to do meet the standards. And, as long as we meet the minimum standard, we shouldn't have to go back and revise the VMP.

Brinkman pointed out that an annex to the document or a VMP template could be ways to accomplish the idea that improvements in the VMP can be introduced without the need for approval. He sought agreement from the group regarding this approach.



Pew noted that it's up to Members themselves to decide how involved they want to get in the details of each VMP, but attention should be paid to the fact that, as mentioned by China, there might be hundreds of vessels that use EM in the future, and that is going to take capacity from a group, whether it be COMM/SC/WGEMS to review and approve each of those VMPs. It is worth considering whether that is the best use of the capacity and whether the focus should be not on how the data is being collected but on making sure that the data collected in fact meets those standards through auditing or accreditation process of the data itself, therefore looking more at the outputs than the inputs of the system.

Brinkman agreed with Pew regarding the potential impact on COMM or whichever body is tasked with reviewing these plans; therefore, the group needs to make sure that the process put in place to review and approve VMPs can keep up with the potential volume that that process might generate

In general, there was agreement that material changes to the VMP that go beyond pure improvements in equipment capability are something that some members would like to see potentially re-reviewed, but there was openness to finding ways to prevent re-review when there is a clear improvement in capability and not a change in the plan for monitoring the vessel.

The United States pointed out that there are mechanisms in place in SPRFMO that have followed the same approach, such as the VMS measure [CMM 06 VMS]; therefore, the approach and language could be borrowed for the EM standards in the sense that minimum standards can be set up and the Members are required to meet them.

## ii. Data Management

This section was deferred to the next meeting as the decisions that need to be made in the technical aspect are outside the scope of the discussions of this meeting.

## iii. Obligations of the Vessel Master

Brinkman invited comments on 12a; there were no comments, and it was considered agreed. HSGF pointed out there are times when a vessel works inside the EEZ before going out into the SPRFMO Area, so suggested that instead of “the vessel does not leave port if the EMS is not operating properly” the wording is along the lines of “capable of operating” because it may be two or three weeks before the vessel progresses into SPRFMO. The USA suggested to add “...in the Convention Area” at the end of the HSGF suggested wording.

Brinkman invited comments on 12b. Ecuador suggested to replace “as soon as practicable” with a more specific timeline to report the EMS malfunction, changing it to 48 hours. HSGF brought up the issue of system failure and the fact that, even with VMS, it is common occurrence and it should be considered.

Brinkman invited comments on 12c; the United States suggested to add some wording instructing that a copy of the approved VMP is available to the Observers and any inspectors on board so that somebody that's trying to see if the system is working appropriately can compare it to what it's supposed to be under the VMP.

China replied to the United States that because VMP would be developed and submitted by the Flag State to whatever Secretariat, SC, or third parties, then having a copy onboard would not be necessary; the observer or the inspection personnel have access to the EMS component and that would be enough to ensure that such vessels have and operate such EMS, but with the USA suggested wording, the VMP not being onboard the vessel could turn in the future into a non-compliance issue. The text related to this issue was also bracketed in paragraph 9.

To the question from China on what the purpose would be of maintaining the VMP on the vessel, Brinkman clarified that a) it could be useful to the vessel master and the crew to see the vessel monitoring plan and be able to consult with it to ensure that the equipment is maintained in accordance with that plan, and b) the vessel monitoring plan would serve as an aid to inspectors or observers who also may want to ensure that the actual operation and implementation on the vessel is in accordance with what was proposed to and approved by the relevant Commission.



Chile asserted that keeping the VMP onboard is relevant as it is a document that should not change much or often, as opposed to the vessel crew; the new crew members or even for inspector can check if the components of the system are according to the BMP that was approved by the commission. The European Union echoed Chile's statement. China requested more time to reflect upon this matter, and Brinkman pointed out the text will be kept in brackets.

Brinkman invited comments on 12d; there were no comments, and it was considered agreed.

Brinkman invited comments on 12e; HSFG pointed out that, given there are other operations in the vessel which could compete for priority so perhaps making the current wording a bit broader, e.g., "the handling of the catch and other vessel operations do not hinder..."; because if we are monitoring the setting of a torii line and the torii line is set somewhere away from the camera or not quite visible, then it's not actually producing the function that is supposed to be doing. So maybe we could be a bit more general than just the bycatch.

Pew pointed out that there is some conflict between the definition of terms being used in this section and how they're defined in the proposed definitions at the end of the document, and highlighted the need to make sure definitions are harmonised with the text in the standards.

Brinkman invited comments on 12f and clarified that this paragraph refers to onboard EMS data (because that's the only component that the Vessel Master would have any influence over), which transmission and retrieval should be carried out in accordance with the provisions of Annex 5 or this document. Annex 5 right now is a placeholder for data storage, retention, transmission, retrieval, review, and reporting. So there would be elements of Annex 5 that apply to data storage on the vessel. There were no comments, and it was considered agreed.

Brinkman invited comments on 12g, there were no comments, and it was considered agreed.

#### **iv. Obligations of the Vessel Master**

Co-Chairperson Brinkman introduced paragraph 13 and invited the meeting to comment on the introductory paragraph and its bullet points a) through to d). There were no comments.

Co-Chairperson Brinkman introduced paragraph 14 and invited the meeting to comment on the introductory paragraph and its bullet points a) through to d).

The European Union suggested adding a list that includes the data fields that will be collected through EMS and to check against other CMMs that have mandatory requirements for data collection. Brinkman pointed out that it would be hard to create such a list given the data fields would vary depending on fishery, type of vessel, etc, so that list would need to be specified elsewhere. This would be something that the annex would be the best place to include these requirements.

Specifically, in regard to bullet d), the European Union sought clarification regarding the wording of "...to meet the requirements of SPRFMO CMMs for monitoring compliance...". Brinkman bracketed the text, as it was vestigial from ICCAT's text.

The meeting then moved on to paragraph 15. Co-Chair Brinkman invited reactions and there were none, so he introduced paragraph 16 and its bullets a) and b).

Pew suggested that there might be a way to refer to requirements that are already existing in CMM 02-2022 that were referenced in paragraph two, because that has significant language about requirements of data submission

Regarding letter b), China suggested that, as with the Observer Programme reporting by Members and CNCPs to the SC, the annual report should also be submitted to the SC, not the Commission.

The European Union and the United States questioned the wording that seems to create added (currently inexistent) requirements for EMS data being reported to the SC, even when said data would not be required for SC processes. Making such reporting voluntary was suggested as an option.

The entirety of paragraph 16 was bracketed.



#### **v. Commission roles and responsibilities**

Co-Chair Brinkman introduced paragraph 17, indicating that the text has been taken from ICCAT.

The European Union stated that this WGEMS is not intended to be a standing WG, therefore the responsibility of reviewing the EMS domestic programmes should be given to the SC, with assistance of the Secretariat potentially.

Co-Chair Brinkman introduced paragraph 18, and subparagraphs a) and b), which lists the responsibilities of the Commission.

The European Union noted that paragraph 18 does not seem to be necessary, as it differs from SPRFMO practice. HSFG suggested deleting the paragraph 18a at least but saw some merit on 18b. Changing “shall” to “may” and leaving it as bracketed text was decided.

#### **vi. Secretariat roles and responsibilities**

Co-Chair Brinkman introduced paragraph 19 and invited comments. No comments were made.

#### **vii. Periodic review**

Co-Chair Brinkman introduced paragraph 20.

Pew supported a review clause but suggested to remove the 4-year wait for the first evaluation.

China asked that a summary report of this discussion including a copy of the revision of the document worked on at the meeting with tracked changes.

### **5. Other matters**

No other matters were discussed.

### **6. Closing of the meeting**

The meeting was closed 2 hours 34 minutes after it started.



## Annex 1- List of Participants of the WGEMS meeting 2

### Co-Chairpersons of the WGEMS

Colin Brinkman  
Guillermo Moran

### Chile

Luis Cocas  
Nicole Mermoud  
Valentina Muñoz  
Raúl Saa

### China

Gang Li  
Ce Liu  
Wang Meng

### Ecuador

Belen Montesinos (Interpreter)

### European Union

Benoît Marcoux

### Peru

Antonino Moreno

### Chinese Taipei

Ming Fen Wu  
Han-ching Chuang  
Shih-Chin Chou  
Shih-Ming Kao  
Haijing Wang

### United States

Elizabeth O'Sullivan  
Laura Cimo  
Samantha Emmert

### CEDEPESCA

Angel Diaz  
Mayra Palacios

### Global Fishing Watch

Krizia Matthews  
Nate Miller

### PEW

Claire van der Geest  
James Gibbon

### HSFG

Jack Fenaughty

### Secretariat

Susana Delgado Suárez



## Annex 2 – Meeting Agenda WGEMS meeting 2

1. Opening of the meeting
2. Agenda adoption
3. Institutional and administrative elements of the Electronic Monitoring minimum standards
4. Co-Chairs' Draft Minimum EM Standards in SPRFMO text
5. Other matters
6. Closing of the meeting



## Co-Chairs' Draft Minimum Standards for the use of Electronic Monitoring Systems (EMS) in SPRFMO Fisheries

### Objective, Purpose, and Scope

1. The objective of the SPRFMO Electronic Monitoring Standards is to enable collection, via Electronic Monitoring Systems (EMS), of verified catch and other data related to the conduct of SPRFMO fisheries in the SPRFMO area of competence [, and transshipments of fishery resources caught in the Convention Area], in order to facilitate the collection of verified scientific data and additional information related to fishing activities in the Convention Area [and transshipments of fishery resources caught in the Convention Area] and their impacts on the ecosystem, and also to support the functions of the Commission and its subsidiary bodies, including the CTC.
- [2.] The purpose of these standards is to establish minimum ~~[program requirements and technical standards and specifications]~~ [requirements for EM programs, EM systems, and EM data standards] for EMS that shall apply when EM is used in SPRFMO fisheries to [meet the SPRFMO Standards for the Collection, Reporting, Verification and Exchange of Data (CMM02-2022)] [generate data to fulfillmeet the data requirements of SPRFMO CMMs] [specifically the information identified in in Annex 3 of this document, and relevant information required under any other CMM] and ensure that when EMS is used it is effective in achieving its intended purpose [and generates data of equivalent rigor to data derived from the SPRFMO Observer Programme].
- [3.] Notwithstanding paragraphs 1 and 2, the implementation of EMS is optional, and these standards do not create any independent obligation for Members and CNCPs to implement EMS onboard their fishing vessels.
- [4.] Members and CNCPs that implement EMS in their fisheries [for the purposes described in paragraph 2] ~~pursuant to SPRFMO CMMs in order to collect and submit data [to meet the data requirements of SPRFMO CMMs]~~ shall ensure that their EMS domestic programs meet the minimum program requirements and standards and specifications set out in these standards.
- [5.] Unless otherwise decided by the Commission, Members and CNCPs shall ensure that they continue to meet the human observer coverage required in accordance with the relevant CMMs, and if they choose to implement EMS in accordance with these standards [for the purposes described in paragraph 2] ~~[to meet the data requirements of SPRFMO CMMs]~~ for scientific purposes, electronic monitoring shall be used to complement the required level of human observer coverage and the required tasks to be performed by these human observers].

### EMS minimum standards and minimum data fields

- 2.[6.] EM equipment shall automatically and autonomously collect EM records to generate the required EM data and shall be tamper-evident (i.e., any attempts to tamper with the equipment will be detectable to the EM service provider/vessel owner, and reported to the respective vessel flag authority).

The minimum technical requirements, performance standards, and activities that shall be covered under EMS and captured by the camera(s) are provided in Annex 2. General recommendations for configurations of for EM equipment (e.g., camera placement and subsequent views) for [squid jigging vessels, carrier vessels, etc] are also in Annex 2, but vessels observing these minimum standards shall develop their own Vessel Monitoring Plan (VMP) (see section on VMP below and Annex 4) based on vessel designs and specifics. The VMP describes how the EM equipment is specifically positioned and configured on board to monitor fishing [or transshipment] activities, and through which the Members and CNCs should verify and document that the minimum standards for the use of SPRFMO are met. Data obtained from the VMP, and provided by all SPRFMO EMS observant vessels, would ensure robust assessments on the performance, progress and evolution of the EMS in SPRFMO fisheries. The minimum data fields that shall be collected by EMS [for each vessel type] are provided in Annex 3.

## Other Programme requirements

### *Vessel Monitoring Plan (VMP)*

If a Member or CNCs intends to generate data via EMS [for the purposes described in paragraph 2] [generate data to fulfill the data requirements of SPRFMO CMMs] ~~[to meet the data requirements of SPRFMO CMMs]~~, such a Member or CNCs shall develop [and submit to the [Commission][SC]] an EM Vessel Monitoring Plan (VMP) for each vessel, [or groups of vessels (e.g., all squid jiggers, or all long-line vessels, or all long-line of a certain size range, or all carrier vessels, etc)] fishing for [or receiving] species under the jurisdiction of SPRFMO, flagged to the Member or CNCs and on which EM equipment is to be operated and applying the SPRFMO minimum standards for EMS. The VMP shall describe the configuration, components and installation of EM equipment on each vessel, and this configuration should be capable of collecting EM records consistent with all relevant minimum standards and technical specifications in this document. A copy of the approved VMP should be maintained aboard each vessel at all times when EM equipment is deployed to monitor vessel's activities. The VMP requirements are detailed in Annex 4. [Any [proposed] modification to the VMP, including EM equipment, [excluding changes in equipment that meet or exceed the EM minimum standards] shall be [proposed to the [Commission][SC] for review and approval, and] [reported to the vessel flag authority for approval, and] promptly notified to SPRFMO.]

### *Data management*

- 3.[7.] The requirements applicable to Members and CNCs for data storage and retention, data transmission or retrieval and data review and reporting are detailed in Annex 5.

### ***Obligations of the vessel Master***

4.[8.] The Master of the vessel shall ensure that:

- a.[.] the vessel does not leave port if the EMS is not ~~operating properly~~ [capable of operating properly][in the Convention Area] unless, the flag Member or CNCP authorizes it to do so and ensures that any relevant data collection or other SPRFMO obligations, such as minimum observer coverage requirements, can be met through other means;
- a.[b.] in case the EMS malfunctions, report the malfunction, including the display of any critical warning, to the flag Member or CNCP competent authorities, through automatic real time notification of the malfunction or manually, within a maximum of [24][48] hours [or as soon as practicable];
- b.[c.] on-board physical access to the EMS components [and approved VMP] is provided if requested by a [flag Member or CNCP] authorised observer and/or inspection personnel;
- c.[d.] in accordance with the VMP and the minimum areas of vessel coverage as specified in Annexes 2 and 3, the cameras have an un-obstructed view, and following pre-established protocols, the camera lenses are kept clean;
- d.[e.] the handling of the catch [and other vessel operations] does not hinder the proper identification and estimation of the catch composition by the [onboard] EMS, [including by-catch];
- e.[f.] the transmission or retrieval of EMS data is carried out in accordance with the provisions of Annex 5;
- f.[g.] unless authorized and instructed by the flag Member or CNCP to take a specific action, the EMS is not tampered with (e.g., disconnect the system, rearrange, or obstruct the view of the cameras, disconnect cameras or sensors, switch-off the [onboard] EMS manually, intentionally break the system, etc.).

### ***Obligations of Members and CNCPs***

5.[9.] Members and CNCPs that choose to implement EMS [to meet to meet the data requirements of SPRFMO CMMs], shall ensure that the fishing vessels flying their flags meet the EMS minimum standards and requirements established in [this CMM] [these standards], including ensuring the following:

- a. that domestic EMS programmes are developed, and designed and implemented in a manner that ensures they are independent, transparent, and accountable, in accordance with requirements set out in [this CMM] [these standards];
- b. that the analysis of the EMS data is done by independent companies authorized by Members or CNCPs or by the institutions or authorities of Members or CNCPs,

with the necessary knowledge, skills and abilities to ensure effective data analysis, including sufficiently accurate species identification;

- c. that rules and procedures are established in case of EMS failure, including to ensure that any relevant data collection or other SPRFMO obligations, such as minimum observer coverage requirements, can be met through other means;
- d. that appropriate follow-up is undertaken if potential infringements of SPRFMO conservation and management measures are detected through the Member or CNCP's EMS programme.

[10.] A Member or CNCP that chooses to implement an EMS programme for vessels operating in SPRFMO fisheries ~~to meet SPRFMO requirements for scientific data collection and/or compliance monitoring purposes~~ for the purposes described in paragraph 2 generate data to fulfill the data requirements of SPRFMO CMMs shall develop and describe an EMS domestic programme. The EMS domestic programme shall meet the requirements in [these standards][this CMM] and include at least the following information:

- e.[a.] an example of the VMPs used in the programme;
- f.[b.] responsibilities of fisheries authorities and vessel owner/crew with respect to installing and maintaining equipment, including routine cleaning of cameras, and responses to mechanical or technical failure of the EMS;
- g.[c.] protocols for data storage and retrieval; and
- h.[d.] list of any SPRFMO measures where the use of EMS is necessary for the Member or CNCP to meet the requirements of SPRFMO CMMs for monitoring compliance, and the protocols for reporting and following up on potential infringements mentioned in Annex 5.

6.[11.] The EMS programme description required in paragraph 14 above shall be submitted to the SPRFMO Secretariat within 30 days of the adoption of such programme. In addition, Members and CNCPs shall report any changes to their EMS domestic programme to the SPRFMO Secretariat whenever such changes occur.

[12.] A Member or CNCP that chooses to implement EMS in its ~~longline or purse seine~~ fisheries ~~to meet SPRFMO requirements for scientific data collection and/or compliance monitoring purposes~~ for the purposes described in paragraph 2 generate data to fulfill the data requirements of SPRFMO CMMs, shall also:

- a.[a.] When EMS is used for scientific purposes, report to the SCRS each year, using the electronic formats that are developed by the [SC]RS, information collected through domestic EMS programmes, in line with procedures in place for other data reporting requirements and consistent with domestic confidentiality requirements; and
- a.[b.] report to the Commission in its Annual Report other relevant information on the results of the implementation of its EMS domestic programme during the previous year, including, at least, the number of vessels or fishing effort monitored; the coverage levels achieved by fishery and gear type; details on

how those coverage levels were calculated; and, where appropriate, information on compliance monitoring.

### ***Commission roles and responsibilities***

The [WGEMS][SC] shall review[, with assistance of the [Secretariat][SC] where appropriate], the EMS domestic programmes submitted pursuant to paragraph 15, as well as the implementation of those programmes and, if appropriate, suggest improvements and adjustment to such programmes to ensure that SPRFMO scientific data collection and/or compliance monitoring requirements are met or that the EMS standards followed by the domestic programme are, with due consideration to the development status of Members and CNCPs, equivalent to those set out in [these standards][this CMM]. The Commission [shall][may] explore the availability of sufficient financial resources to support, where needed, the effective introduction and implementation of SPRFMO's EMS programme requirements, standards and specifications contained in [these standards][this CMM], including by developing Members and CNCPs; engage in coordination on EMS activities and programmes with other ~~tuna~~ RFMOs [and other relevant fisheries management organisations]. [the Commission may delegate this responsibility to the WGEMS.]

### ***Secretariat roles and responsibilities***

7.[13.] The Secretariat shall:

- a. [communicate][collaborate] with the Members and CNCPs implementing EMS domestic programmes to ensure that they [understand][can meet] the applicable SPRFMO reporting obligations;
- b. summarize and provide Annual Reports to the Commission about the progress of Member and CNCPs in implementing EMS domestic programmes.

### ***Periodic review***

[14.] The Commission shall review [these standards][this CMM] ~~in~~ [4 years after adoption] and at least every [four] years thereafter to evaluate [their][its] effectiveness in fulfilling its purpose and consider the need for revisions, taking into account, *inter alia*, relevant information provided by Members and CNCPs on the introduction and implementation of their EMS domestic programmes as well as any new technological developments.

## **ANNEX 1- EMS terms and definitions:**

**Electronic Technologies (ET):** any electronic tool that is used to support fisheries-dependent data collection, both on shore and at sea, including electronic reporting (ER) and electronic monitoring (EM).

**Electronic Reporting (ER):** the use electronic systems (application, software, form or file) to record, store, receive and transmit fisheries data.

**Monitoring:** the requirement for the continuous collection of fishery-related data.

**Electronic Monitoring (EM):** the use of electronic devices to record fishing vessel's activities using video technology linked to a Global Position System (GPS), which may include sensors.

**Electronic Monitoring System (EMS):** the system comprising the vessel and shore-based components for collecting, transmitting and reviewing EM records, reporting of EM data and implementing an EM Program.

**EM Program:** a process administered by a national or regional administration that regulates the use of EMS on vessels to collect and verify fisheries data and information responsible through an implementation of an EMS in a defined area and/or fishery.

**EM Program standards:** the agreed standards, specifications and procedures (SSP) governing the establishment and operation of an EM Program, applicable to all components of the EMS.

**EM data requirements:** the agreed subset of data requirements by the SPRFMO Observer Program that can be collected via EMS.

**EM records:** Imagery, and possibly sensor, raw data linked to positional data collected by an EM equipment that can be reviewed to produce EM data.

**EM data:** processed/analysed data produced through review of EM records that conforms with the EM data standards.

**EM equipment:** a network of electronic cameras, sensors, and data storage devices installed on a vessel and used to record the vessel's [fisheries-related] activities.

**Vessel Monitoring Plan (VMP):** The vessel's EM equipment characteristics and how the vessel's EM equipment is installed and configured to monitor fishing activities and meet the EM Program Standards and EM Data Requirements.

**EM review:** the review of EM records by EM observers/reviewers to produce EM data.

**EM observer/reviewer:** a person qualified to review EM records, store and produce EM data in accordance with the EM Data standards and analysis procedure.

**EM review system:** application software used by the EM observer to review the EM records and produce the processed EM data as per the EM data standards.

**EM review center:** local, national, or regional office facility where EM records are received and reviewed to produce and store EM data.

**EM review provider:** a third-party provider of EM review services to review EM records to produce EM data. The same third-party organization can provide both the EM equipment and EM review services but they can also be supplied by different providers.

**EM installation coverage:** the proportion of vessels by fleet that has EM equipment installed that is operational.

**EM record coverage:** the proportion of fishing effort for which EM records are collected by installed EM equipment.

**EM observer/review coverage:** the proportion of fishing effort for which EM records are reviewed to produce EM data and submitted to SPRFMO.

**EM service provider:** a third-party provider of EM equipment (and/or system), technical and logistical services to maintain the EM equipment and monitor its proper functioning.

**ANNEX 2- Minimum technical requirements, performance standards, camera view of fishing activities under coverage by EMS, and recommended configurations for EM equipment for each vessel type**

**ANNEX 3- Minimum data requirements for vessel type**

**ANNEX 4- Description of the EM Vessel Monitoring Plan (VMP)**

**ANNEX 5- Data Storage, Retention, Transmission, Retrieval, Review, and Reporting**