INTER-AMERICAN TROPICAL TUNA COMMISSION

6TH WORKSHOP ON AN ELECTRONIC MONITORING SYSTEM (EMS) IN THE EPO: STANDARDS FOR AN EMS IN THE EPO

(by videoconference)
13-15 December 2023

DISCUSSION SUMMARY

The 6th Workshop on an Electronic Monitoring System (EMS) in the EPO: Logistical and data analysis and reporting standards, was held by videoconference from 13 to 15 December 2023. A list of participants is provided in Appendix 1.

1. Opening of the meeting

The meeting was chaired by Mr. Brad Wiley of the IATTC Policy and Compliance Division.

There were no comments on the draft agenda.

The 6th EMS workshop was convened within the framework of the terms of reference outlined in Resolution C-21-02 by the Commission. This resolution sets the stage for a series of workshops aimed at elaborating essential aspects of a potential EMS program, awaiting approval from the Members. The goals of these workshops extend beyond drawing conclusions and recommendations on the covered topics; they also include educating participants, fostering communication, and developing a shared understanding among stakeholders on EM matters. Participants were tasked with considering and providing comprehensive commentary on discussion topics, related to the logistical standards, particularly the management, transfer and review of EM records, as well as for the protocols and procedures to be considered in the context of data analysis and reporting standards.

The Chair indicated that over the course of the meeting, IATTC staff would give a presentation corresponding to document EMS-06-01. As with past workshops, discussions took place consistent with the Chatham House Rule, meaning that comments would not be attributed to any individual, government or other affiliation, unless attribution was explicitly requested by the speaker. In addition the staff presentation, four additional talks were given by invited experts from other organizations, providing additional insights and perspectives on the topics under discussion:

Hilario Murua, chair of the IOTC Working Group on the Development of Electronic Monitoring Programme Standards (WGEMS), gave a presentation on the EMS implementation and minimum standards in IOTC. He centered his talk on the EM process and history in the IOTC and the key milestones achieved during this process, particularly on the adoption, through the Resolution 23/08 of the terms and definitions of EMS, the EM Program Standards, and the EMS and Data Standards as per IOTC SC recommendation, that allows CPCs to meet the minimum ROS data requirements under Resolution 22/04 using EMS.

Rui Coelho, chair of ICCAT SCRS Subgroup on EMS, gave a presentation on the Implementation of EMS and minimum standards in ICCAT. He talked about the EMS structure within the ICCAT, the development of the Standing Committee Research and Statistics (SCRS) minimum technical standards recommendations for EMS in longlines and purse-seines (EM equipment, data storage, data collection, data protection and potential privacy issues), and the subsequent adoption of these recommendations as well as other main points agreed by ICCAT during its plenary meeting in November 2023 (PWG_415B/2023).

Eric Gilman, a fisheries scientist with the Safina Center, presented the Status of the Development and Adoption of Minimum Standards on Fisheries Electronic Monitoring Systems by Intergovernmental Organizations. He provided a review of the EM standards from 15 RFMOs and 4 bodies, in addition to the Agreement on the Conservation of Albatrosses and Petrels (ACAP), which also has provided guidelines on fisheries Electronic Monitoring Systems. The benefits of EM over at-sea observers, and the EM deficits

and possible solutions were also covered during his presentation.

Finally, Brett Alger, Brett Alger (NOAA Fisheries), who is chairing the working group of the International Council for the Exploration of the Sea (ICES) for implementing technologies in commercial fisheries (TIFD), presented Developing Standards for EM Programs (NOAA and ICES). He summarized the approaches taken by the US EMS programs to better standardize how data are collected, managed, and analyzed using new technologies (AI, ML) across EM systems, fisheries, and governmental jurisdictions. One example is that many EMS programs are developing templates for vessel monitoring plans (VMPs), which can standardize how each vessel has set up their EM systems, handle fishery catch, etc., to implement performance-based standards and ensure data quality improvement as a program matures. He also described the TIFD working draft data model and specification that could be leveraged by any new EM program to start with a foundation for what EM systems can collect across fisheries and gear types.

2. Discussion of EMS-06-01, Logistical and data analysis and reporting standards of an EMS in the EPO

Mr. Marlon Roman gave a presentation complementing EMS-06-01, . which contains a number of draft/strawman recommendations submitted by IATTC staff with the goal of stimulating focused discussion on a number of topics.

2.1. Logistical standards

The staff explained that in the context of EMS, "logistics standards" primarily refers to the management of EM records. These standards can vary according to a number of factors, including, *inter alia*, fishery type, vessel based in one or multiple ports, and port accessibility. These considerations, in turn, can have implications in terms of the cost of EMS. The Commission will need to determine how different EM coverage costs will be covered and address security and confidentiality concerns related to the transfer and review of EM records. Regarding confidentiality, the staff mentioned a few different approaches among the continuem of options. One option would be for EM records to be reviewed and transformed into data by the program monitoring the vessel (e.g. national, regional or Commission prorgam), perhaps similar to the way PS observer data is reviewed under the AIDCP. Other options include the possibility of outsourcing EM record handling and/or EM analysis to a approved, certified, external third parties.

Staff Recommendation: ***All EM records must be transferred from the vessel to the EM review center at the end of each trip***.

- One participant expressed concerns on the amount of work and cost implied for CPCs and/or IATTC in order to process so many EM records. The staff explained that this specific recommendation is not that all EM records must be analyzed (i.e. review rate) but rather to the notion that all original EM records should be transferred to a centralized holding location managed by the deploying program or some third party capacity (i.e. cloud storage)assocaited with the review center. EM review center has been defined in the document EMS-01-01 as a "*local, national, or regional facility where EM records are analyzed to produce EM data*".
- Another participant reminded participants that in the context of longline vessels, which are currently observed by national programs, EM data would be supplementary or complimentary to data collected by a human obsevrer deployed on the same vessel-. Therefore, EM records should be received and processed by a national CPC review center within the flag state so that it can be considered in combination with the data derived from human observer records. Then flag state would then communicate the resulting data to the Secretariat. Data submission to the Secretariat in a manner similar to the current observer data flow under Resolution C-19-08.
- A third attendee also pointed out that an EM records and EM data homologation process would be required to ensure that programs and data are homogeneous. One option would be a certification program which would seek to ensure not only overall data quality, but also that the metrics, units, and other aspects of minimum data fields are interpreted uniformly among programs so that the

data from various programs are all equivalent and can be combined for the purposes of scientific investigation. The same participant also stressed the need to ensure that transshipment is included within the scope of IATTC EMS and the need to clarify what other gear types woudl be included. Regarding longliners, they suggested that a trusted actor to retrieve and deliver the EM to the EM review center for vessels fishing for extended periods of time.

- Another also considered that for some longliners it will be difficult to transmit data for each trip, as one trip may last more than a year if trip is defined as ending when the vessel makes port. They suggested that it would make more sense if long-trip longliners would offload EM records periodically during the at-sea transhipment process

Staff Recommendation: ***Irrespective of the data transfer method used for EM records, an encrypted storage device containing the same EM records information must remain on board as backup. The deletion of records from the vessel's backup devices should only occur once the EM records have been converted to EM data at the EM review center***.

- One attendee highlighted the importance of the EM records backup and the need to better define the minimum storage needs. The storage capacity is important because it could have operational and monetary implications (i.e., storage is more expensive the more information you store).
- Another participant doubt as to whether backup and storage of EM records is necessary if the purpose is for scientific data only (the goal and scope of an EPO EMS has not been decided by the Commission yet). Regarding encryption function depends on domestic regulations for privacy and will vary among members, so the participant suggested that there is no need for this to be stipulated at this stage.
- Other participant mentioned that EM records' backups are encrypted in vessels under their country jurisdiction, and thinks that some countries may have a way to encrypt and store backups on land-based offices.

Staff Recommendation: ***EM data should be generated by the program that monitored that trip, whether IATTC or a national program***[1]***. Provided that standard protocols and procedures are followed, CPCs should choose whether to contract the work out through a commercial EM review service provider or do it themselves***.

- One attendee suggested to edit the last sentence of this recommendation with the text "…*or to designate the institution to conduct the review*".
- Another reflected on that the analysis of EM in line with this recommendation would be costly.
- A third one felt that a hybrid system could be a good solution, and that it is also important to have an overview of costs.
- The staff, respecting this recommendation, considered that some of the comments and differences in opinion were a function of the how the CPCs view the purpose of EM regarding scientific or compliance or both.

2.2. Data analysis and reporting standards

Concerning data analysis and reporting, the staff remarked that regardless of the approach chosen for the EM analysis, it is important that EM data maintain consistency and comparability, following standard protocols, procedures, and training, as well as processes to check and validate data, such as species identifications, catch data (both total and by species), individual measurements, etc., developing standard conversion factors (e.g., length-to-weight, number-to-weight), and establishing a schedule for reporting data to the IATTC by individual EM programs.

[1] This would involve expanding existing programs or creating new ones at national, or perhaps regional, level.

Staff Recommendation: ***Design and organize training courses for EM analysts, coordinated by IATTC staff, with input from EM service providers and other experts***.

Staff Recommendation: ***EM analyses should only be conducted by trained EM analysts, ideally possessing some experience at sea***.

- Regarding the training, one participant mentioned that coordination by IATTC staff is not necessary in the case of longline vessels since programs will be national programs, and that training in other languages will be difficult. However, the establishment of standard procedures is not in question. Another attendee agreed with this idea but also mentioned that if the IATTC staff do not participate with the coordination there will be no path to certification, so they advocate for IATTC staff training coordination. The IATTC staff explained that the centralized training would be for reviewers. It will be very important to have a system for auditing various programs so that data standards are met, and data is high quality. The staff also clarified that these recommendations do not mean that IATTC will train everyone, it means that the IATTC staff will help coordinate training of national programs or the development of training material.
- Regarding the resistance to training being exclusively coordinated by IATTC staff, perhaps there is a middle ground where there can be a set of principles or guidelines to assist national programs, which can then be translated by national programs into materials appropriate for their observers.
- Another attendee remarked that IATTC-specific training is important for species ID for EPO specific species, and that they would prefer a senior observer to review the EM data as well. Also agree to have consistency between programs but the agreements should be flexible enough to promote innovation.
- A participant with an EMS implemented in his country expressed support for these two recommendations because they do not think they could carry out good analysis and produce quality data without adequate training. This would be even more important where an EMS would include multiple national programs in addition to, possibly, a centralized Commission program, and where the resulting data is intended to contribute to a single, comprehensive database.
- An attendee added that EM technology is evolving very fast, and that their staff constantly learning, and they may not need to attend a training course. They are not against IATTC training some EM analysts, but they prefer this not to be a condition for them to use EM in the future. The IATTC staff clarified that they don't train everyone in every language and that beyond training for basic competence, the emphasis is on standardization across all programs, regardless of how much knowledge or experience a given EM review center might already have.
- Lastly, a participant mentioned that training and materials prepared by IATTC staff are typically very helpful and of high quality, and thus well-suited to facilitate standardization of requirements and data standards across national programs.

Staff Recommendation: ***Make EM data generation automatic and user-friendly to expedite EM analysis and directly include information in EM data or reports***.

Staff Recommendation: ***Any activity identified by the cameras should automatically include, at a minimum, location, date, and time stamps***.

- A participant said that these recommendations are common sense. However, they think the language is too strong as it is uncertain these could be 100% accomplished, and these would not make much sense in their implementation. The staff recognized that these recommendations could be revised taken the comment into consideration to more flexible.

Staff Recommendation: ***Develop software with built-in error and cross-checking procedures and digital measuring tools, as well as review routines to flag potential errors***.

Staff Recommendation: ***EM data should be consistent and comparable, regardless the EM program or review center that generated it and must be generated and reported using standard protocols and procedures***.

- A participant mentioned these error checking routines should be optional. They already have tests performed and the suppliers have identified bugs and bug identification software. For the second recommendation, the flag state should provide EM data in a standard format, but it is not necessary that databases are compatible especially since analysis will be done by flag state authorities.
- An attendee wondered whether the IATTC is developing a built-in error check software, or are the countries. The staff replied that they are not developing this software, but they make recommendations to the service providers.
- Other expressed that some clarification is needed on what coverage percentage would it be for EM and for human observers, and if there would be a required increase in coverage, the country should decide what is for human observers and how much for EM. Additionally, he said that all EM analyses should be done by CPC's EM review center.
- A participant expressed that the EM data standardization needs to reflect what the Secretariat needs, not what some CPCs want to provide. It also needs to be compatible so as not to overburden Secretariat with work, but provide the staff with usable good quality, standardized EM data, similar to the arrangement with current national observer programs for purse-seine vessels. This remark was seconded by another attendee, who also added that review routines for EM analysis are necessary, and standards need to be defined for providing the EM data information.

Staff Recommendation: ***Standardized species-specific length-weight and weight-number conversion factors, based on peer-reviewed research results and/or empirical data, should be developed and agreed upon, and updated as necessary***.

- There was a general support to this recommendation. Some even noted that this effort goes beyond of the scope of EM and applies to data collected by human observers.
- A participant suggested the recommendation be edited to read: "*Standard factors for conversions should be developed by the staff and approved by Commission*".

Staff Recommendation: ***Standard formats should be used for generating EM data fields (e.g. dates as DDMMYY, latitude and longitude in decimal units) and creating resulting EM data files (e.g. csv, accdb, xlsx)***.

- The only comment offered expressed total support of this recommendation, stressing its importance.

Staff Recommendation: ***EM records should be submitted to the EM review center within 30 days of the end of the corresponding trip***.

- An attendee felt that this recommendation should not specify deadline times here. EM records should be sent to the EM review center as soon as possible, as it gives more flexibility among members. Additionally, the trip definition for longliners is different among members, so there will be need to clarify this.
- Based on comments received and internal discussion, IATTC staff have revised this draft recommendation to reflect the different situations that may arise regarding transmission of EM records to IATTC. The new draft text reads as follows:

- ***Where the Commission has identified the need for IATTC staff or contractors to review and process of EM records, including their conversion into EM data, these records should be transmitted to the IATTC Secretariat within 30-days following the end of a trip. Flag CPCs should also ensure that owners and operators may provide EM records immediately upon request where the Commission has established the obligation of such provision in the framework of the IATTC EMS program.***

Staff Recommendation: ***EM data should be submitted following a system similar to the AIDCP or other IATTC procedures, where EM programs submit purse-seine and longline data to the IATTC annually, in March and June, respectively, of the following year***.

- A confusion emerged regarding to whether EM data implies that the CPC sends the hard drive with raw information or does CPC have to review the information and then submit it. The staff clarified this inquiry and explained that this recommendation is exclusively for EM data, to be submitted on annual basis: in March and June of the following year for purse-seine and longlines, respectively. There is no need to be sent on hard drives because it is already distilled, analyzed, and encrypted data.
- Another participant mentioned that an annual EM data submission to the IATTC is adequate to ensure compatibility with other Commission data submission procedures, such as those carried out in the AIDCP and other IATTC programs. A second participant, also agreed with this statement.

Staff Recommendation: ***EM records and data should be submitted via a dedicated cloud-based portal. The portal should be as user-friendly and automated as possible, and include quality control (e.g. format checking, error flagging) procedures, as well as automatic reminders for the timely submission of EM data and records***.

- Different opinions were expressed on this recommendation. Some stating that EM data should be submitted through the flag CPCs.
- Another attendee felt that this recommendation would only work for a centralized EMS, but not for EM national programs, they should not send the large amount of data to the Secretariat. Additionally, they suggested to remove the term 'EM records', since uploading such a high volume of information is not only practical, but costly. The staff concurred that this bifurcation is depending on whether there is a centralized repository or if the CPCs are submitting on their own, as well as the final goal and scope of the EPO EMS.
- A third participant wondered what is the type of information requested in this recommendation is about EM records and/or EM data. The staff replied that it could be also EM records (if required) based on the 4th recommendation on the institutional structure), but also clarified that EM data should be only submitted through the cloud, given the current actual costs.

Appendix 1

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