

Dear Electronic Monitoring Service Providers and Workshop Participants,

On May 22, 2023, The Pew Charitable Trusts convened 20 electronic monitoring (EM) service providers and other key participants to discuss ways to bolster their engagement at regional fishery management organizations (RFMOs). The workshop was organized in response to recommendations from the [Global Electronic Monitoring Symposium \(GEMS\)](#) which identified a critical gap in communications between EM service providers and those who develop EM programs at RFMOs, leading to a mismatch of EM expectations between the two groups. The workshop participants, representing over 10 EM and artificial intelligence (AI) service providers, learned about high seas fisheries governance, the operation of RFMOs, and explored opportunities to collaborate in support of developing EM programs in tuna RFMOs. Participants reviewed the current draft EM standards developed at three of the five tuna RFMOs as well as the EM standards recently adopted by the IOTC. The workshop was a key step to better coordinate EM service providers engagement at the RFMOs and to support the development of compatible standards across ocean basins.

The outcomes of the workshop are enclosed below.

Thank you,

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*Outcomes: 2023 Workshop on RFMO Engagement for EM Service Providers*



**Feedback on EM standards development at the tuna RFMOs**

Participants reviewed and provided feedback on the draft EM standards from three tuna RFMOs: Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tunas (ICCAT), Western and Central Pacific Fisheries Commission (WCPFC) and the adopted EM standards for Indian Ocean Tuna Commission (IOTC). High level summaries are noted below for each RFMO breakout group. Overall, there was broad agreement that RFMO standards should be focused on the EM outputs, (i.e., mandating which data are collected, reviewed, and reported, instead of how it is collected) and should incorporate flexibility to enable ongoing innovation and technical development, including the developments in relation to artificial intelligence and machine learning.

**1. IATTC – Inter-American Tropical Tuna Commission**

Participants highlighted the need for more clarity, flexibility, practicality, and consideration of cost-effectiveness in the standards, while addressing important aspects such as data privacy, maintenance, encryption, and storage. Specific feedback received for IATTC members to consider included:

- Removing sensors as a mandatory requirement as this can be a hold-over from earlier generations of hardware;
- Requiring that Vessel Monitoring Plans provide vessel-specific configurations without prescribing the number or placement of cameras directly in the standards themselves (i.e., the number and placement would be tailored to the specific vessel to meet the data collection/reporting needs rather than a uniform number of cameras being required for the diversity of vessels in the fisheries). The data needs should be in the standards

while the specific number and placement of cameras requires more flexibility to take into account the vessel size and configuration;

- Providing a broad overview of camera specifications that accounts for cost-effectiveness and flexibility for different cameras and frame rates (i.e., as currently written, it is unclear if the cameras must be capable of the stated frame rate or if they must operate at that rate—the former was considered reasonable by the participants while the later would be unnecessarily cumbersome and costly in many instances);
- Addressing data storage requirements and responsibilities without prescribing specific hard drive or quantity requirements;
- Considering and outlining fisher privacy (e.g., including mentioning blurring of faces on footage, etc.), data ownership, and access;
- Defining data review, audit processes, operating procedures, and interoperability requirements;
- Adding the agreed ([IATTC C-21-03](#)) definitions of key terms directly into the standards, defining system health check requirements (e.g., including budgeting for an EM system calibration/verification trip after initial installation), and specifying the reporting requirements directly in the standards;
- Editing maintenance instructions to be practical and realistic (i.e., requiring that a crew member clean the camera lens weekly is both too specific and not practical—a more appropriate standard would be that the cameras are maintained in such a manner that they collect high-quality EM records at all times); and,
- Clarifying EM records encryption and transmission timelines.

## 2. [ICCAT - International Commission for the Conservation of Atlantic Tunas](#)

Participants generally found ICCAT’s EM standards to be overly prescriptive and limiting to specific technologies. Many agreed that clear objectives should be established initially, and fisheries managers should avoid changing EM goals frequently, as it requires different camera setups. Specific feedback received for ICCAT members to consider included:

- Focusing the initial goals of EM on scientific data, followed by compliance – noting that other objectives around MARPOL and labor are not yet scalable;
- Aligning the EM standards with existing Regional Observer Program (ROP) standards whenever possible, especially regarding record access requirements;
- Removing unnecessary specifics on the technology, e.g., 5G WIFI and sensor requirements;
- Conducting a comprehensive review to determine essential data needs and considering the effort required as well as its usefulness;
- Refocusing standards to be outcome, performance-based;
- Standardizing EM data submission formats and establishing a centralized data collection system;
- Determining a process to address potential malfunctions;

- Considering a new term to capture the combination of EM and human observation at RFMOs (e.g. monitoring coverage);
- Ensuring periodic reviews are not too frequent, as it takes time for technology integration into fisheries; and,
- Noting that EM records storage of 3 years is reasonable and EM reports can technically be stored indefinitely for compliance and scientific reviews.

### 3. [IOTC – Indian Ocean Tuna Commission](#)

Participants generally found the IOTC EM standards to be thorough but lacking in clarity when it comes to roles and responsibilities of different stakeholders. Communication and feedback loops between stakeholders are needed to address initial technical issues such as camera angles. Accuracy assessment between EM and human observers has not been formally conducted at IOTC, but it may be undertaken in the future. EM/AI service providers want to contribute to defining reasonable accuracy metrics consistent with industry standards. Specific feedback received for IOTC members to consider included:

- Specifying broadband and satellite requirements either in the standards or the VMP itself;
- Addressing compatibility with existing MCS tools to avoid duplication of functions and unnecessary costs;
- Defining the role and contract details of a designated persons that ensure system operability;
- Refining EM records storage autonomy to include deadlines for reviewing and presenting data, and specifying which EM records should be stored for long-term accessibility;
- Specifying responsibilities within VMPs for maintenance workers; and,
- Creating a formal process for tracking, recording, verifying, and correcting VMPs to prevent any potential logistical complications and delays.

### 4. [WCPFC – Western and Central Pacific Fisheries Commission](#)

Participants considered that the draft WCPFC EM standards offer flexibility and an opportunity to transition to outcome-based approaches. However, the objectives currently lack clarity and connectivity to accompanying documents. Specific feedback for WCPFC members to consider included:

- Reducing prescriptive language for vessel types and sizes;
- Considering transmission costs when determining transmission times;
- Balancing resolution and type of footage for cost-effective AI development;
- Including incentives for AI integration and compatibility with Electronic Reporting (ER) systems;
- Reducing prescriptive text and costs relating sensor requirements;
- Ensuring hardware-agnostic standards;
- Better addressing privacy and confidentiality concerns;

- Establishing accreditation for AI and machine learning data acceptance by RFMO; and,
- Determining EM records or footage retention timeframes and compliance relationship.

### Opportunities for EM service providers to coordinate RFMO engagement

Participants noted that while there might be a significant market for EM in the future, currently the demand is quite small, and this poses challenges for providers seeking to invest in further technological advancements. Participants concluded that the primary obstacles in catalyzing EM adoption are more political in nature rather than purely technological. There was broad consensus that sharing the results of stakeholder engagements, such as this workshop, can help RFMOs set realistic expectations regarding the implementation of EM systems and avoid a complex web of incompatible rules and regulations. Recognizing this, EM service providers discussed different ways to engage at the tuna RFMOs. Notably, participants discussed the idea of forming an alliance or association, or an equivalent organized group, for EM service providers to:

- Input into the development of EM standards across the RFMOs;
- Organize the voice of EM providers and define key messages to convey to relevant stakeholders;
- Stay informed about developments of EM at different RFMOs;
- Create a comprehensive calendar of all RFMO EM-related meetings to facilitate their participation;
- Facilitate recognition of EM providers as significant stakeholders in the decision-making process;
- Ensure commercial benefits for EM providers as the technology continues to grow and advance;
- Attend relevant meetings and actively advocate for the interests of EM providers; and,
- Explore the possibility of partnering with a non-governmental organization to enhance appeal and global representation.

Participants agreed on the importance of unifying their voices to drive EM policies at RFMOs and ensuring compatibility of EM standards between management bodies. Various coalition models were discussed and there was broad agreement on the need to have a third-party entity represent the EM service providers and be funded by dues from each member. One EM provider even volunteered funds and human resources to begin such a coalition. All providers agreed to consult with their respective leaders to pursue the formation of a coalition for RFMO engagement.

### Next steps

Following the workshop, all participants were provided with this report, the tuna RFMO EM draft standards and IOTC adopted EM standards, and copies of all presentations. Pew will submit a summarized version of this report and relay the feedback received on draft standards to the IATTC, ICCAT, IOTC, and WCPFC EM working groups and Commission meetings in 2023 and 2024.