

## **Electronic Monitoring in the U.S. Atlantic Pelagic Longline Fishery: An Information Paper**

*Submitted by the United States*

The United States is providing this paper to offer details on the use of electronic monitoring (EM) equipment in the U.S. Atlantic pelagic longline (PLL) fishery. We hope this information can help foster discussions by the Integrated Monitoring Measures (IMM) Working Group about the scope, purpose, and specifications of any EM rules ICCAT may consider developing in light of the relevant provisions in recommendations, including Recs. 19-02, 19-05 and 19-06.

The United States has required EM on our PLL vessels, regardless of size, operating in ICCAT fisheries since 2015. EM was implemented as a compliance tool on PLL vessels to monitor implementation of individual bluefin tuna quotas. The EM system allows the United States to confirm that bluefin tuna interactions are being reported accurately and as required, and to verify the accuracy of reported catch and of species identification. EM provides an independent data stream to verify bluefin tuna catch reports submitted by PLL fishermen through traditional logbooks, VMS set reports, and/or observer reports. The U.S. EM requirement has been very effective as a compliance tool, and the incidental catch of bluefin tuna in the U.S pelagic longline fishery has been effectively reduced.

In response to the adoption of the Recommendation by ICCAT on the Conservation of the North Atlantic Stock of Shortfin Mako Caught in Association with ICCAT Fisheries (17-08), the United States incorporated EM requirements into U.S. regulations to address overfishing and support measures to rebuild North Atlantic shortfin mako sharks. In the PLL fishery, that action implemented measures allowing retention of North Atlantic shortfin mako sharks if dead at haulback, provided the fishing activity was observed by either an at-sea observer or an approved EM system.

### **Technical description:**

The EM system must be installed by a U.S.-approved contractor, it must consist of video cameras, other related sensors, and recording equipment, and it must have the following components and capabilities:

- Video cameras must be mounted and placed so as to provide clear, unobstructed views of the area where the PLL gear is retrieved and of the catch during hook removal prior to being placed in the hold or discarded. There must be lighting sufficient to clearly illuminate individual fish.

- Vessels are required to be equipped with a minimum of two cameras, with sufficient resolution (no less than 720 pixels) to determine the number and species of fish harvested. To obtain the views described above, one camera must be mounted to record close-up images of fish being retained on the deck at the haulback station, and one camera must be mounted to record activity at the waterline along the side of the vessel at the haulback station.
- The EM system must be capable of initiating video recording at the time gear retrieval starts. It must record all periods of time when the gear is being retrieved and during hook removal until the catch is placed in the hold or discarded.
- The EM system will continue to record for 30 minutes after the last drum rotation sensor signal, or hydraulic pressure sensor signal, which indicates the activity of machinery used for hauling gear. The system must include a GPS receiver which records location coordinates, velocity, and heading data, and is directly and continuously logged by the control box.
- The GPS receiver must be installed and remain in a location where it continuously receives a strong signal.
- Hydraulic sensors are required to continuously monitor the hydraulic pressure, and a drum rotation sensor must continuously monitor drum rotations; these hydraulic pressures are recorded and stored by the control box.
- The system must include a control box that receives and stores the raw data provided by the sensors and cameras. The control box must contain removable hard drives and storage systems adequate for a trip lasting 30 days.
- A wheelhouse monitor must provide a user interface for the vessel operator to monitor the control box and provide information on the current date and time (synchronized via GPS), GPS coordinates, current hydraulic pressure reading, presence of a data disk, percentage used of the data disk, and video recording status.
- The EM system must have software that enables the vessel operator to initiate an EM self-diagnostic test for functionality of the system components, and that records the outcome of the tests.

### **Data Collection and Submission:**

When a vessel enters the U.S Atlantic PLL fishery, the owner/operator is required to have an EM system installed on their vessel. Vessels are provided with four hard drives for use in the EM system. The owner/operator is responsible for plugging in the hard drive before the start of each fishing trip, verifying that it is functioning properly, and ensuring the system remains powered

on and positioned correctly for the duration of each trip. These EM systems record only during gear haulback; recording is triggered by sensors that are mounted on the mainline drum and on the hydraulics. The system continues to record for up to 30 minutes after the last time the sensors are triggered. Within 48 hours of completion of a fishing trip, the vessel owner/operator must return the hard drive(s) to the EM service provider with pre-paid return postage. When a hard drive is received for processing, a new hard drive is shipped back to the vessel owner/operator within 48 hours.

Data from the hard drives is managed by an EM service provider company contracted by the U.S. government. The vessel owner/operator is responsible for notifying the EM service provider if they have not received a replacement hard drive or if their EM system is not functioning properly. Video footage from all PLL vessels is also reviewed by the EM service provider. Currently, 10% of fleet-wide sets are targeted for review per year. Potential noncompliance identified during the review of video footage and program administration is referred to NOAA’s Office of Law Enforcement for appropriate action.

**Costs:**

EM program costs in the Atlantic PLL fishery are borne by the U.S. Government. In 2020, the U.S. PLL fleet had 110 vessels outfitted with EM, 67 of which were active. Overall costs per CPC of implementing an EM program will vary taking into account the domestic structure of their program, including who bears which costs (e.g., the vessel, the government, or some combination) and how the program is implemented (e.g., via contractors and/or government personnel), the size of the fleet to be covered, and the purpose and scope of the EM program.

EM Cost Estimates	Start Up Costs (Year 1)	Annual Maintenance Costs
Equipment Installation and Repair	\$1,500,000 - 1,700,000	\$500,000 - \$700,000
Data Storage and Review	\$900,000 - \$1,400,000	\$750,000 - \$1,100,000
Total Costs	\$2,400,000 - \$3,100,000	\$1,250,000 - \$1,800,000