INTER-AMERICAN TROPICAL TUNA COMMISSION

SCIENTIFIC ADVISORY COMMITTEE

FIFTH MEETING

La Jolla, California (USA)
12-16 May 2014

DOCUMENT SAC-05-04b

OPTIONS FOR MARKING AND IDENTIFICATION OF FISH-AGGREGATING DEVICES (FADs)

INTRODUCTION

IATTC Resolution C-13-04 established new requirements pertaining to both FAD data collection and FAD identification, with new requirements taking effect January 1, 2015. Section 1 of C-13-04 establishes data collection and reporting standards that are described in detail in Annex I of the same document, while Section 2 requires the Director to develop and recommend a FAD identification scheme for adoption and implementation by CPCs no later than January 1, 2015. This paper focusses primarily on options for FAD identification, recognizing that this is necessarily intertwined with the collection of FAD data because the type of information that can be collected varies with the identification system chosen.

This paper describes briefly five options for FAD identification along with their advantages and disadvantages and then concludes by highlighting a couple of the preferred options for further consideration. As part of this process, in April 2014, IATTC staff met in Manta, Ecuador with the manufacturers or distributors of satellite buoys to explore the feasibility of these options, and these consultations in turn informed the analysis and recommendations below.

OPTIONS FOR IDENTIFICATION OF FADS:

A. **A)Satellite Buoys' Electronic IDs:** Nearly all FADs are tracked by companies and vessels using attached buoys that communicate their position via satellite. Each buoy is individually identifiable by a unique electronic signature or code. While the other systems considered below would allow for an inventory of FADs and other quantitative data, as well as matching up FAD deployments and FAD retrievals, access to the data transmitted by the satellite buoys provides an entirely different level of detail, revealing not only a detailed track of the FADs movements, all fishing activity on each one, and also data like sea surface temperature or sonar data that the companies and vessels use in their fishing operations. Another benefit to this approach is it does not require any additional items to be developed and attached to FADs before they are deployed. One limitation to this approach is that reliance on a proprietary electronic signal as the only systematic means of FAD ID is that FADs/buoys that are encountered that are not the property of the vessel or its company could not be identified by an observer. If the tracks of all satellite buoys are made available to the Commission at some point, then the identification of the encountered buoy could be deduced after-the-fact.

B. **Short-range Electronic Tags**: In its simplest form, this type of system would employ anelectronic tag attached to the FAD or associated buoy that would be detectable by the observer using a handheld device when a vessel is within sight of a buoy. The observer would interrogate electronically the FAD when encountered, and the FAD would transmit its code number and potentially all the information on previous movements. More expensive options that would include additional sensors that could also collect and transmit information such as positional data history, and transmit it to the

observer during the communication. One advantage to such a system when compared to the visual markers mentioned below is that it would not require the FAD to be brought on board or along-side in order for it to be identified by the observer. For example, observers could collect data from buoys that were encountered at a distance, but not set upon.

Some industry representatives have expressed concerns regarding the sharing of sensitive, satellite buoy data, particularly in a real-time manner. Although such data would necessarily be covered by the Commission's rules on confidentiality, one approach that could lessen these concerns would be to have the data shared after some lag in time. If satellite buoy data were shared with the Commission after a delay that is acceptable to the industry, they would still have enormous value for scientific evaluations

Implementing this approach would incur significant expense for not only the hand held receivers, but also the individual tags and a power supply that could power the transmission when the tag is activated. Additionally, the necessary equipment becomes more expensive as the range of detection increases beyond approximately 20 meters

C. **Physical Marking Tethered to FADs**: This method would use a plate of PVC or other buoyant material that would be tethered to the FAD with a code that will be read by the observer from the vessel or by the crew in a small craft. The advantage of such a system is that it would be comparably low in cost and very simple in terms of technology, but extremely laborious, and may require adding personnel or expenses to manufacture and mark the plates. However, some industry consultants have expressed reservations regarding this approach because a floating tag designed to be visible and to be read from a distance might increase the FADs visibility at the surface and might facilitate its exploitation or appropriation by someone other than the FAD's owner. Additionally, this system would only allow for the collection of basic data such as place or deployment, place of retrieval and/or exploitation, and the creation of a FAD inventory

D. **Marking of Satellite Buoys with Bar Code or QR Code**: This approach would make use of technologies common in the global retail sectors. Unique, waterproof labels could be generated and hand-held scanners are widely available. This approach would not increase visibility in the same way as Option C, but would be more expensive from a technological standpoint. The data limitations would be the same as the non-electronic marker options, but another drawback would be that the scanner would need to be in close proximity to the buoy in order to read the label. That is, if the FAD were not brought on board where it could be scanned by the observer, the only option would be to have a crew member scan the buoy label from a small boa.

E. **Alphanumeric Tags Attached to Buoys:** This approach would require painting a 5-6 character alphanumeric code of at least 2 inches in height on the upper part of the satellite buoys. This approach combines the lower cost and higher visibility advantage of Option C with the convenience of labeling the satellite buoys directly. The system would be relatively simple and could possibly be viewed by the observer from the deck of a vessel with a good pair of binoculars. In the event that they would need to be read by a crew member from a small boat, this could be done without the need for any additional technology such as a scanner or reader. Some concern was expressed that any tag on the transparent surface of a satellite buoy might interfere with the collection of energy by the solar panels, but the satellite manufacturers consulted believe that limiting the ID to 5-6 characters and picking a placement on the surface that does not interfere with the transmission of solar energy to the cells on the buoys would not cause problems. Currently, many vessels paint their names on the surface. Again, this approach would allow for the collection of basic inventory and deployment/retrieval data.

DISCUSSION

The most desirable approach for identifying and tracking individual FADs would be to transfer to IATTC

the satellite tracks of each FAD, either by the satellite providers themselves, after all necessary approvals, or by the company or flag nation. This has the advantage of making use of a system that is already part of the FAD and can be used to monitor and track the FAD in real time, and includes the potential for the collection and analysis of data that is generated while the FAD is at liberty. However, some captains, owners and companies may not be comfortable providing access to this information- particularly real-time access. If that is the case, delayed access to this data for the FADs deployed in the ETP will be necessary to reassure the users that the information will not be of use to competitors, etc. The delay needed may depend on the areas, but it would be a subject open to discussion. Given the seasonal movements of many of the vessels, a period of 3-4 months may be feasible, but other periods are also possible. Of the remaining options, Option E is the preferred option in terms of cost, simplicity, and functionality. Option E will allow all FADs to be uniquely identified at the time of deployment, retrieval or other physical encounter form a fishing vessel.