Report of the ISSF Workshop on Non-entangling FADs

San Diego, California, USA, February 16, 2015

1. Introductions and review of objectives

The use of FADs in purse seine fisheries has been under criticism in recent years because their use can generate higher bycatch rates versus sets on free-swimming schools. Three RFMOs – IATTC, ICCAT and IOTC – have put management measures in place that call for a transition to non-entangling FADs as one way to decrease this bycatch. At the same time, various groups have suggested that other design elements aimed at lessening FAD impact on the marine ecosystem – biodegradable components, for example – need to be implemented. In 2012, ISSF published guidelines for the construction of non-entangling FADs, which left specific, on-the-water designs to the fishing industry.

Given this background, many fleets have introduced design changes to their FADs. However, in most cases these changes have occurred on an isolated fleet-by-fleet basis. The Workshop was convened to serve as an open forum to share experiences and lessons learned about new FAD designs in use across ocean regions.

Prior to the meeting, invitations were extended to the tuna purse seine fishing industry at large, including ISSF Participating Companies and all of the owners of vessels on the ISSF Proactive Vessel Register (PVR). Also, several scientists from the ISSF Bycatch Steering Committee were invited. The following fleet representatives and scientists attended the Workshop: Leonardo Aguirre, Laurent Dagorn, JD Filmalter, Martin Hall, Brian Hallman, Kim Holland, Federico Iriarte, David Itano, Susan Jackson, Sarah Le Couls, Mike McGowan, Gala Moreno, Julio Morón, Jefferson Murua, Juan Miguel Nava, Victor Restrepo (Facilitator), Marlon Roman, Kurt Schaefer and Bobby Virissimo. The meeting was held at the offices of the American Tunaboat Association (ATA).

2. Review of RFMO measures on FAD design

Currently, three RFMOs have measures that mention non-entangling FADs. IOTC Resolution 13-08 and ICCAT Recommendation 14-01 both require a transition to non-entangling FADs. IATTC Resolution C-13-04 recommends the use of non-entangling FADs, but this is non-binding, unless the IATTC staff and Scientific Committee recommend to the Commission that it becomes binding. In all three measures, similar language is used to specify the elements of what constitutes non-entangling:

1) The surface structure should not be covered, or only covered with non-entangling material.
2) The sub-surface components should be composed of non-entangling material (e.g. rope or canvas).

In addition, the three measures encourage the use of biodegradable materials in the construction of FADs.

3. Overview of ISSF guidelines

The 2012 ISSF Guide for Non-entangling FADs was published. The Guide contains essentially the same elements as the RFMO measures. This is not surprising, as the RFMO science bodies and Commissions considered the ISSF Guide in developing their measures.

The ISSF Guide also considered that there could be a "transition period" for the fleets to switch from traditional FADs to completely non-entangling FADs, by constructing FADs that would greatly reduce (but not eliminate) the risk of entanglement. These "transitional" FADs could use small mesh (stretched mesh size 7 cm or less) netting, and if larger mesh purse seiner net was used in the underwater structure the netting would need to be tightly wrapped into cylinders ("sausages").

4. Lessons learned from ISSF Skippers' Workshops

Since 2009, ISSF has conducted 34 workshops in which nearly 700 skippers from many purse seine fleets have participated. The objective of the workshops is to share best practices for bycatch mitigation with the skippers and receive ideas and feedback from the skippers. Since 2012, when the ISSF Non-Entangling FAD Guide was published, the curriculum of the workshop has included a section on non-entangling FAD design and construction. During these workshops, skippers and other participants have an opportunity to comment on the adequacy of the designs presented and to provide information on their own designs.

The information received from the skippers indicates that many fleets are changing or have changed to deploy most or all of their FADs that significantly reduce entangling. These are mostly of the "transitional" variety in the ISSF Guide, although some skippers report using FADs, both anchored and drifting, that are completely non-entangling (i.e., without any netting).

Workshop participants noted that it would be useful to carry out a detailed study of current FAD design practices across fleets. In order to do this, it would be necessary to ensure that RFMO or National observer programs collect the data uniformly to allow comparison. It was also noted that RFMOs are starting to form FAD Management Working Groups which are expected to discuss these matters.

5. Exchange on FAD designs being used

Participants representing different fleets made presentations on their current or planned FAD designs. The following points were noted, in no particular order:

- Most of the non-entangling FADs being used today are of the "transitional" type in the ISSF Guide; they use netting of varying mesh sizes which is wrapped into a cylindrical shape.

- Non-entangling FADs do not necessarily result in lower catches of tunas compared to traditional FADs.
- Some fleets are introducing completely non-entangling FADs (that do not have any netting) but these have not yet been widely adopted, except in the case of fleets utilizing anchored FADs which are constructed without netting materials.
- Constructing non-entangling FADs is not necessarily more expensive than constructing traditional ones. Very simple to make and cheap net free designs are being successfully used by some fishing companies.
- Some fleets are testing the use of biodegradable materials, but more testing is needed to identify the best materials and their behavior in the water (e.g., durability, water absorption, erosion by feeding fish). It is important that the materials hold together long enough to allow the FAD to be useful to the vessels (8 months to 2 years, depending on the ocean region).
- Wrapping the surface structure is important for many reasons, including creating shadow, providing strength, reducing visibility and generally improving FAD longevity.
- Manufacturing FADs on land is desirable because it improves quality control, results in more uniformity in designs, can save time and construction design can be verified for non-entangling elements.
- In some ports where there is intensive construction of FADs on land due to high demand there are times when net material shortages, especially of small mesh, occur. Alternative designs with ropes, a much more common material, could prevent this problem.
- It is important to allow for some flexibility in designs in order to adapt to local conditions and to the needs of the skipper.
- In some places, when using wood or bamboo for the surface structure, it is useful to utilize invasive species because this helps efforts to eradicate them.
- Each fleet appears to be designing its FADs independently of other fleets. There is little sharing of knowledge between fleets or even between companies within fleets.

6. Discussion on key design elements

In the discussion that followed the individual fleet presentations, the Workshop Participants identified two key design elements for the construction of FADs that would be 100% non-entangling, both of which are currently in use by some fleets:

1) To reduce entanglement of turtles on the rafts of FADs, the surface structure should not be covered or only covered with non-meshed materials such as cloth or canvas.

2) If a sub-surface or submerged component is used, it should not be made from netting but from non-meshed materials such as ropes or cloth sheets.

The following related points were also noted by the group:

- It is more useful to recommend designs for different FAD styles rather than to prescribe a single best design.
- Construction of FADs on land, where feasible, allows for better quality control and helps ensure implementation.
- Since most of the non-tuna species are close to the surface, suspending the main frame of the submerged structure deeper, for example using only rope in the first 10-20 m, should be helpful for reducing entanglement.
- Canvas materials with FAD desirable characteristics (e.g., resistant, cheap, low-visibility) are already being used at commercial scale by some fleets to cover the raft.

7. Discussion on possible ways to verify implementation

Today, the use of non-entangling FADs by various fleets is largely self-reported. Fleet representatives recognize that it is important to have a more transparent and robust process for verification, especially in the near-future when binding requirements by some RFMOs become mandatory. The Workshop recognized the following as useful steps for verification:

- Construction of FADs on a land facility can help verification for newly-constructed FADs, e.g. by visits from an inspector. But, in general, at-sea inspection is superior because the FADs actually in operation are observed, including those that may not be owned by the vessel that sets on them.
- Observers can often verify if a FAD is entangling or not, but not always. In some observer programs, observers are not required to record this information, so changes to the observer data forms would be needed. In addition, if during a set the FAD is not lifted out of the water, it is difficult or impossible for the observer to assess how the subsurface structure is made, so lifting the FADs would be a requirement that would help validation.
- The use of cameras (Electronic Monitoring Systems) on purse seine vessels and auxiliary vessels can be used to validate the structure of the FADs when they are deployed or picked up during sets.
- At this initial stage, when not all RFMOs have regulations for non-entangling FADs that are binding, collaboration initiatives between fleets and recognized scientific bodies to assess and quantify voluntary efforts to adopt non-entangling FADs are welcomed.

8. Recommendations

The Workshop recommended the following:

1. A few fleets are testing FADs that are completely non-entangling as well as testing biodegradable materials. However, they are doing this with only minimal - if any - collaboration amongst them. ISSF should play the role of communicating what is being tested and become a conduit for information exchange between fleets.

2. This report should be distributed to the ISSF Bycatch Steering Committee. In turn, the Committee take the information provided in the report and update the Guidelines for non-entangling FADs. These best practices should be reflected in the Skippers' Workshops and Guidebooks and be accompanied by relevant illustrations.

3. ISSF should consider adding a "voluntary" column to the Proactive Vessel Register (PVR) for vessels that utilize completely non-entangling FADs.

4. Managers of observer programs should, where necessary, modify the data that the programs collect so as to include information on whether a FAD is entangling or not.

9. Adjournment

The Workshop was adjourned and the report was adopted by correspondence.

Acknowledgments

ISSF is grateful to the fleet representatives who attended the workshop to share their experiences, especially those who travelled very long distances for a short meeting. ISSF is also grateful to ATA for allowing the use of its conference room for the workshop.