

INTER-AMERICAN TROPICAL TUNA COMMISSION
AD HOC WORKING GROUP ON FADs

La Jolla, California (USA)
15 May 2016

REPORT OF THE COORDINATOR

AGENDA

1.	Opening of the meeting
2.	Adoption of the agenda
3.	Review of the inter-sessional activities of the <i>ad hoc</i> Working Group on FADs
4.	Summary of the collection and compilation of information on FADs in the EPO; identification of information gaps
5.	Summary of recent progress regarding scientific information on FADs, including information on non-entangling FADs
6.	Review of the requirements laid down in resolution C-15-03 data collection; proposal for standardized forms
7.	Progress with respect to management of FADs in other tuna RFMOs
8.	Identification of potential FAD management measures: pros and cons
9.	Development Plan of work of the Working Group for 2016-2017
10.	Research priorities
11.	Recommendations for the Commission
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1. Opening of the session

The Coordinator of the group, Mr. Josu Santiago, began the meeting by providing a brief summary of the mandate of the Group contained in Annex III of Resolution [C-15-03](#) on FADs.

He recalled that this is a multisectoral group, open to the participation of various stakeholders, including scientists, fisheries managers, representatives of the fishing industry, administrators, representatives of non-governmental organizations, and fishermen. He noted that group will report its results to the Scientific Advisory Committee (SAC) in 2017, which will then also decide on the future of the Working Group. He stressed that the opinions expressed by participants were personal comments and not made on behalf of countries. He recalled that the Working Group was initially created in September 2015 as an electronic working group using an online discussion forum (BASECAMP), but that he had come to the conclusion that it was time for face-to-face meetings.

The primary action items for the Working Group from the terms of reference were summarized in four points:

1. Collect and compile information on FADs in the EPO, including, but not limited to, data collected by the IATTC and reports prepared by the scientific staff of the IATTC.
2. Review the requirements for data collection on FADs established in resolution C-15-03 to assess the need for revision.
3. Compile information on developments with regard to FADs in other tuna RFMOs.
4. Compile information on developments with regard to the latest scientific information on FADs, including information on non-entangling FADs.

He stated that the face-to-face meetings would be held in 2 sessions, the present meeting, and a second on June 26, 2016. A third meeting could take place between June 27 and July 1 on the sidelines of the annual meeting of the IATTC, if necessary.

2. Adoption of the agenda

The Coordinator described the points of the agenda, and recalled that it had been published on the BASECAM site and the CIAT as [Proposed Guidelines and Annotated Agenda](#).

He proposed that the first seven items of the agenda be addressed at the present meeting and the rest at the June 26 meeting. He said that, according to his interpretation and that of others on the mandate of the group, the Working Group had no capacity to issue management recommendations to the Commission.

Several participants requested that Item 8 *on Identification of potential management measures for FADs: pros and cons* be addressed at this meeting. One participant pointed out this item could only be addressed by compiling a list of potential management measures to be noted by the rapporteur, since it was not clear that the Working Group had the mandate to recommend measures.

3. Review of the intersessional activities of the ad hoc Working Group on FADs.

The Coordinator recalled the 5 areas of work established for the Working Group through the BASECAMP system made available by the Secretariat. The areas are as follows:

1. Aspects of the functioning of the group.
2. Collection of information about FADs.
3. Form for the collection of data pursuant to resolution C-15-03.
4. Progress in other tuna RFMOs
5. Progress in scientific research.

Participants discussed the efficiency of the BASECAMP site for purposes of the Working Group and the following proposals/observations were identified:

1. It would be desirable to have translations of the messages on the virtual site, even though some are received in both of the IATTC's working languages.
2. Improve the format of the virtual forum.
3. Redistribute the list of e-mails of the participants in the virtual forum.
4. Make a training tutorial on the use of BASECAMP, as well as design a very simple and understandable manual on how to use the tool.
5. Explore the possibility of using a simpler, better online forum tool.
6. Allow new participants in the electronic forum beyond those meeting the original deadline for registration.
7. Encourage the participation of persons knowledgeable about FADs, mainly industry. Companies carry out interesting work that it would be appropriate to bring to the discussion forum.
8. Review the mandate of the Working Group to expand it beyond technical issues, giving it greater ability to provide advice to the Commission.

The Coordinator mentioned that he was not satisfied with the participation in the electronic Forum. He since the forum was created in September 2015, 64 participants have registered, 23 of those have been active. There have been 92 posts to the forum, most of which can be attributed to 3 registered participants. The majority of the posts have basically asked about technical issues of functioning of the site. In this sense, he considered that there has been a very limited participation.

Other participants mentioned that the Forum may have had more impact than realized, as it has generated internal, technical consultations at the country level, which implies that there have been positive impacts from the discussions.

A participant suggested that a simple way of expanding the mandate of the Working Group would be to turn it into a permanent group with changes to the rules regarding consensus, quorum, etc., and there is already a Permanent Working Group on Bycatch that could take over the work of this multisectoral group. A couple of participants noted that the theme of the FADs could not be limited to only bycatch since it also concerns the direct catches of juvenile tuna, for example.

Other participants recalled that the Working Group has to report to the Scientific Advisory Committee (SAC) in 2017, which was a very distant date given the urgent need for regulations in this fishery. It was noted that information should be gathered as of now for review by the SAC.

4. Summary of the collection and compilation of information on FADs in the EPO; identification of information gaps

For this item of the agenda, Mr. Marlon Román of the scientific staff of the IATTC, gave a presentation entitled *Summary of the collection and compilation of information on FADs in the EPO; identification of information gaps*.

4.1. Presentation Summary :

The first form for observers to collect data on floating objects was created in 1987. The information collected was for each set or each floating object encountered, weather permitting. Data were recorded on the position and date and time of the set, as well as a description of the type, shape, material and predominant color of the floating object. Information of the fauna associated with the object was also recorded, as well as the capture of tuna. This form allowed us to know that several non-target species were also associated with and caught in floating-object sets. Subsequently, in 1994, we created a new form which was more focused on data relevant to the floating object and which was to be completed at the end of each set. Recording of tuna catch and catch of non-target species was not included in this form, as it was recorded in other forms designed for that purpose.

Changes in the type of object (from natural objects to FADs), meant a change in fishing strategies on floating objects in the EPO, this led to the design of a new form which came into use in 2005 and which focused on the collection of data on FADs and their characteristics, such as shape and dimensions; information on its components when found, and with when left drifting, which is something that allows us to know the 'evolution' of the object during the trip; information on the fishing interactions on FADs such as its deployment, recovery, etc, and which allows us to know about the dynamics of these interactions. Finally, obtaining also information on the technology applied to this fishery, for example, and methods for finding the object, the equipment involved in finding it and the capacity of this equipment of transmitting parameters such as estimates of the biomass around the object.

4.2. Discussion

To a question what percent of FAD sets are made on FADs with or without satellite beacons, he responded that approximately 67% have satellite beacons. Regarding whether the data cover smaller vessels or only class-6, he responded that currently there is only information on class-6 vessels. However the intention is to work on a pilot program to place IATTC observers on vessels smaller than class 6 and this was reported at the SAC meeting.

To a question about whether it was possible to deploy FADs at night and what monitoring of this was possible given that the observer cannot stay awake to monitor whether a FAD was being deployed, he answered that deploying FADs generally occurred at night and that they are generally stored on deck and the observer can count how many were deployed the previous night. In addition, the captain provides information to the observer. Another way to know is by the number given to the FADs which is

consecutive. A participant mentioned that there are gray areas in this work since changes of observers limit monitoring or recording their use and therefore work need to be done on this.

One participant recalled that the resolution in force requires that, Parties require all purse-seine vessels to gather and report information on FADs starting in 2017. This requirement was originally for 2015, but it was postponed. The obligation is not for the observers but for captains and vessel owners.

It was clarified that the figure presented on FADs deployed did not included all class-6 vessels and therefore the number looked low. It was noted that the current forms were currently being revised to collect the information from small vessels.

It was clarified that “FADs with permission” means FADs which authorized for use by other vessels by whomever deployed them. In other cases they are only used by third-party vessels without communication or authorization.

Several participants agreed that good information on FADs is already being collected, but that it is necessary to supplement it with the data called for in Resolution C-15-03, paragraph 3. It was noted that a format for what the data summary mentioned in the resolution should contain does not currently exist. Others stated that the information should not be limited to a summary but should include the provision of raw data. In addition, the Resolution requires that information be provided 30 days prior to the meeting of the SAC, and that this deadline should be revised since it is too short for a good review of the information. It was concluded that the procedure should be to propose amendments to the Resolution for consideration at the annual meeting of the IATTC.

It was noted that in the IATTC the requirement to use non-entangling FADs is still an aspiration, while in the Indian and Western Pacific it is mandatory, so further progress in that regard should be considered. It was also noted that underwater research on FADs shows that entanglements typically last about two days, after which the entangled fauna sinks, and that this confirms that the use of netting is problematic.

It was noted that Resolution C-04-13 as amended by the C-15-03, there is already a requirement to submit information on FADs, including small vessels, which would provide more information. In addition, FAD technology has advanced, and they are now easy to find, so it would be very easy to comply with the requirement to withdraw some of them.

5. Progress with regard to the latest scientific on FADs, including information on non-entangling FADs.

It was reported that Mr. Kurt Schaefer of the IATTC staff has compiled a bibliography of work in other RFMOs, which can be found at <https://www.iatcc.org/Misc/IATTC-FAD-WG-Bibliography.htm>

It was noted that this bibliography was a good starting point. It contains some of the key documents produced in recent years on the subject of FADs. It was suggested that the bibliography be updated on a quarterly basis and that it be posted on the site that contains the other documents relevant to the Working Group, including presentations.

The following presentations were made to extend the information available on this agenda item.

	Title	Presenter
5.1	Towards acoustic discrimination of tuna species under FADs	Gala Moreno
5.2	Independent indices of abundance indicators	Josu Santiago
5.3	Evaluating potential biodegradable twine for use in the tropical tuna fishery)	Josu Santiago
5.4	Biodegradable and non-entangling nets	Marlon Román
5.5	Evaluation of the preliminary performance of shallow-depth compared to normal-depth FADs in the EPO tuna purse-seine fishery	Kurt Schaefer

5.1. Acoustic discrimination of tuna species under FADs

5.1.1. Summary

Tuna seiners fishing for tropical tunas use geo-locator buoys to follow the trajectories of their FADs. Nowadays, a high percentage of these buoys are also equipped with sonar, so fishermen can obtain a rough estimate of the biomass associated with their FADs. Currently the various echo-sounder buoys available on the market do not have the ability to distinguish among species of tuna that are associated with the FADs, which would allow fishermen to avoid fishing areas with high concentrations of undesirable sizes or species of fish, and would also allow scientists to obtain direct observations of species associated with FADs using these same acoustic tools. However, at present both fishermen and scientists cannot discriminate among the three species of tuna associated with FADs using acoustic means. This is mainly due to the lack of basic information about the acoustic signals of the three species of tuna associated with FADs, i.e. there is no information about the strength of the acoustic target of each species (a value required to convert the acoustic signal into biomass) and which is essential in order to be able to discriminate between species. Currently, a variety of research is being conducted to arrive at acoustic discrimination among the 3 tuna species. ISSF has organized 2 scientific research projects aboard tuna seiners fishing in the central Pacific and Atlantic Oceans, which have studied the different frequency responses of the 3 species of tunas, sampling the FADs with scientific echosounders operating at different frequencies simultaneously. The work done so far confirms the ability to discriminate between species of tuna that have swim bladders (bigeye and yellowfin) compared to those that lack a swim bladder (skipjack) simultaneously using different sonic frequencies. This document presents the research that has been conducted so far and that will be carried out soon in order to discriminate among species of tunas under FADs.

5.1.2. Discussion

In response to a question, it was stated that acoustics can distinguish among species and sizes, to the centimetre, of tunas and determine whether a species is present or absent. It is thus possible to determine whether a school consists primarily of bigeye and avoid setting on that species. Also with this equipment, the ability of the fishing captain could be a less important factor.

There is no information available as to whether small purse-seine vessels deploy FADs that are then set on by large vessels, and it is not known whether acoustic information could support management measures.

5.2. Independent indices of abundance indicators

5.2.1. Summary

In the 2000s the fleet of purse seiners targeting tuna tropical began to regularly use buoys with sonar when constructing FADs. This technological development is causing rapid changes in fishing strategies and in the behavior of the fleet due to the possibility of providing information remotely and in almost-real time regarding the precise locations of FADs and the presence and size of the aggregations of tuna under them. Apart from their unquestionable usefulness as a fishing tool, buoys equipped with echosounders also have the potential to be a privileged observation platform for assessing the relative abundance of the biomass of tuna associated with FADs using information independent of catches. The presentation illustrates methodologies for taking into account covariants that are independent of abundance, so that data from echo sounders on FAD buoys can be used as a supplemental relative abundance index in the evaluation of tropical tuna stocks.

5.2.2. Discussion

It was noted that information from echosounder buoys should be provided with a four-month time lag, in order to protect the confidentiality of proprietary data.

5.3. Evaluation of the potential of biodegradable twines for use in the tropical tuna fishery

5.3.1. Summary

It is estimated that tens of thousands of man-made FADs are regularly used by the industrial purse-seine fleets targeting tropical tuna all over the world. While fishing on FADs is considered an efficient method for catching tuna, this form of fishing also has certain ecological and environmental disadvantages, such as large amounts of bycatch in comparison with fishing on unassociated schools, the potential for increase of marine debris, and the unintentional catch by entanglement of some vulnerable species such as turtles and sharks. In fact, this last drawback associated with FADs is one of the main concerns for the RFMOs, and fishing fleets are already starting to deploy and regularly use non-entangling FADs in their fishing strategy. However, the use of new materials to build the submerged part of the object has not been evaluated in detail so far. To meet this need, scientists, the fishing industry, and twine manufacturers have recently collaborated on a project to test and evaluate the potential of different biodegradable materials that can be used in the construction of FADs. This presentation provides the results of research conducted in the Atlantic Ocean testing and evaluating different designs and materials with the goal of making them as biodegradable as possible, as efficient as possible in terms of uptake of biofouling, and which in turn would make it possible to create FADs that avoid entanglements of sharks and sea turtles. The results of this experiment show that different materials and designs have an important role in the deterioration of the prototype itself as well as their ability to capture organisms. The document discusses the potential use of new materials and designs for the creation of the FADs and ponders the implications that might have for the conservation and future lines of research in the field.

5.3.2. Discussion

One question was whether any studies had taken place on anchored FADs, and the reply was that the tests were carried out in cages near the AZTI research facilities in the north of Spain. Also, the IATTC has a project, funded by the European Union, to study biodegradable materials for FAD construction. The preliminary results are provided below.

5.4. Biodegradability and non-entangling nets

5.4.1. Summary

Non-target species are also found in association with FADs. There is also concern over the fate of the components of the FADs may be either lost at sea or not retrieved- particularly where components of FADs include plastics or other materials that are not easily degradable in the sea and which can persist for a long time in the environment as pollutants. Therefore, there is an interest in identifying biodegradable materials that could be used in the construction of FADs. The objective of this project is to identify means of building non-entangling FADs with biodegradable materials in order to reduce the mortality of non-target species and minimize the contributions of waste and the pollution of the ocean. The project will be carried out in two phases: 1) testing the durability of biodegradable materials near the IATTC's Achotines Laboratory, in order to identify the best prototypes for further testing in purse-seine tuna trips, and 2) deployment of prototype FADs aboard tuna purse-seine vessels in order to examine their effectiveness and viability under real fishing conditions.

Phase 1 has not started yet. Unfortunately, the arrangements with the Government of Panama concerning the granting of permits caused delay in the deployment of FADs near Achotines. Currently, Phase 1 is ready to begin, and will be testing 3 prototypes. All of these prototypes use bamboo as a floating structure. Sisal ropes are also used in these prototypes to hold the components together, and also for the hanging elements of the FADs. In general, palm leaves, bamboo lattice and thick cotton fabric will be the components used in each prototype. FADs will be anchored with cables at locations with water at least 20 fathoms deep. Divers will be used to periodically monitor and evaluate the FADs in terms of any degradation of the materials used in the construction. Monitoring will take place at intervals of no more than two weeks for at least 5 months. The two best designs in terms of performance will be used in

fishing trials. During phase 2, trials will take place on at least 2 tuna vessels. Each FAD will be equipped with a satellite locator beacon, and instruments that can also provide information of the biomass under the FAD and readings of oceanographic parameters. To account for the spatial and temporal variability, experimental FADs will be deployed in batches along with conventional FADs, alternately. The position of the FAD, and biomass and oceanographic readings will be recorded daily during the fishing trip, as well as any capture of tuna and bycatch.

5.4.2. Discussion

To a question about the costs of FADs constructed with biodegradable materials compared to conventional FADs, it was noted that the current plastic FADs are cheaper. In the research being done by IATTC, the FADs are being built with local materials and local labor, which can result in lower costs. Many participants expressed interest in seeing the results of this study at the next meeting of the SAC.

It was noted that in ICCAT the use of non-entangling FADs is mandatory, and that the SAC has recommended they should also be mandatory in the EPO. It was also noted that vessel owners may prefer biodegradable FADs for their ecological and conservation benefits, perhaps designating catches as “FAD free”

5.5. Preliminary assessment of the performance of shallow-depth FADs compared to normal-depth FADs in the East Equatorial Pacific tuna purse-seine fishery

5.5.1. Summary

Collaborative trials carried out by the NIRSA company, ISSF, and the IATTC to compare the performance of 50 shallow (5m) FADs and 50 normal (37 m) FADs, with the aim of finding a practical solution to reduce the fishing mortality of bigeye in the purse-seine fishery of the EPO. So far data have been collected from 30 sets, a sample sufficient to confirm whether there is difference in the proportion of bigeye captured in sets on normal and shallow FADs. The proportion of bigeye captured in successful sets was lower with shallow (0.27; 0-0.83) than with normal (0.33; 0-0.80) depth FADs.

There was no significant difference in the average daily drift velocities between the two types of FAD (0.80 kn; 0.41-1.18 vs. 0.81 kn; 0.45-1.10) during the first 60 days after deployment. There was also no significant difference in the estimated average total tuna catch in successful (15.0 t; 1-48 t vs. 15.0 t; 1-56 t).

5.5.2. Discussion

It was noted that there is no clear indication that reducing the depth of the nets below FADs is viable, although that in a paper presented by Cleridy Lennert at the last SAC meeting, the results indicated that depth was a significant factor in the amount of catch.

It was also noted that the data are not sufficient to determine if there is a difference in bycatch. The experiment was carried out on vessels as they fished; they were not go anywhere at any specific time, thus the tests were conducted under normal fishing conditions.

The final point under this agenda item was an attempt to identify data gaps and missing information regarding FADs. Deriving from an intervention by Dr. Hall, the following points were discussed.

1. Use of satellite systems on FADs.
2. The amount of information on FADs for Class-6 vessels is good, but data from smaller vessels is needed.
3. Determine whether there are differences between large and small vessels in terms of FAD fishing areas
4. Density of FADs per unit area.

5. Modifications to biodegradable FADs, collecting information on research results should continue.
6. Recovery of lost FADS.
7. Monitoring their movements into tourist areas and their impact.

It was noted that research priorities will be reviewed at the Commission meeting and that many of these issues can be considered then.

One participant asked for formal and precise definitions of terms used in this work that could be used in a regulatory context, such as “biodegradable” and “non-entangling”, and noted that the results of this research should be compared to work being done in other RFMOs.

6. Review of the requirements of Resolution C-15-03 on data collection; proposal for standardized forms

The Coordinator noted that Annex 1 of the Resolution defines the information that must be collected by observers beginning in 2017. The form should be simple and easy to use. In order to proceed quickly, he proposed that the Secretariat prepare a draft form and post it on the BASECAMP site for discussion. The Director agreed to perform this task. One participant said that the Group should be cautious in tasking the Secretariat because its mandate is limited to presenting recommendations to the SAC.

7. Progress on management of FADs in other tuna RFMOs

The Coordinator provided a summary of the resolutions that have been established in the different tuna RFMOs regarding the use of FADs.

Several participants emphasized the need to have a dialogue with the WCPFC on work on FADs.

A staff member of the WCPFC reported that it held an organizational meeting, where the President of the IATTC was present, and the main theme was the development of a research plan. There was also a meeting in Bali, organized by a consulting agency, where decisions on the marking of FADs were taken, about which they were going to be in contact with IATTC. He welcomed collaborative work between the two organizations, noting that they were impressed by the work conducted by IATTC to date.

He raised the possibility of having a technical meeting to keep updated about the technical and management efforts of both Commissions.

8. Identification of potential management measures for FADs: pros and cons

It had been planned to cover this item at the continuation of this meeting in June, but at the request of a number of participants it was presented on this occasion. One participant suggested that the Group only work on a list of options, since the real objective of the agenda and the Working Group was to define information needs.

Dr. Martin Hall, of the IATTC staff, made a presentation on this topic.

He pointed out that the first important decision is to identify the objectives and prioritize them. The objectives should include, among others, effort controls, reductions in the catch of bigeye tuna, reduction of bycatches, reduction of entanglements in FADs, reduction of marine debris, etc.

Means of achieving these objectives include:

1. Regulation of the construction and materials used in FADs, including their electronics.
2. Regulating purse-seine nets (e.g. depth?)
3. Regulating fishing operations (e. g. requiring backdown, which FADs can be fished on).
4. Regulating FAD deployment (in time, space, etc.)
5. Regulating the number of FADs or the number of sets on them; the extreme of this option being

prohibiting the use of FADs, which would have a significant effect on the region.

6. Regulating the technology used
7. Limiting catches of bigeye with either global quotas or individual vessel limits
8. Develop good practices to mitigate problems
9. Creating programs to reduce losses of FADs and facilitate their recovery
10. Marking of FADs or use of satellite information to determine their trajectories and history of use.
11. Modifying fishing gear to improve selectivity
12. Developing or improving technology to identify biomass, by species, under FADs
13. Banning discards of tunas or of all species, which could motivate captains to make better decisions.
14. Many of these options can be accompanied by incentive programs (e.g. shorter closures for captains with lower bigeye/skipjack ratios).
15. Combining measures of different types that complement or address different objectives.

The Working Group discussed these options, and many stressed that a single measure would not be adequate and that each has its own impacts, both positive and negative, so a regulation should contain complementary elements of several measures. It was noted that one of the measures should be to limit the number of sets on FADs, which has continued to increase. The Group also discussed establishing closed areas or periods for FAD fishing, like the WCPFC

It was noted that the SAC had requested that work be done on possible management measures for FADs, and the scientific staff of the IATTC is already working on this.

Continuation of the meeting

26 June 2016.

The coordinator conducted a review of the progress made during the first part of the meeting, which addressed items 1 to 8 of the agenda. In the second part of the meeting, items 6 and 7 on forms for data collection on FADs, and progress of FADs management in other tuna RFMOs, were revisited.

Participants discussed the possibility of adding an additional page (on a FADs inventory) to the forms currently filled by the observers . Some participants mentioned that there is no need to fill out a new form, in the case of vessels with observers, and instead vessels without observers should be targeted for this purpose. A participant mentioned that in small vessels (under class 6) information could be collected through a pilot program, but that this was an issue in his opinion that should be discussed by the Commission not by this FADs working group.

Another participant mentioned that since 2013 there is a IATTC resolution, which was amended, but maintained the tools needed for a FADs identification system , and where forms are not to be filled by the observers, but by fishing captains, and all vessels are included..

A participant from the tuna industry clarified that the requirements established in the resolution must be complied with and but nothing more than what it is already established there. When the form was developed, the resolution was taken into account, and now, the proposed form in the internet interactive website, is requiring more information, which is not stipulated in the resolution.

The coordinator made a brief presentation about the work on FADs management in other oceans. He suggested that a small working group be organized to prepare a form that would be easy to use in IATTC. He requested that Mr. Martin Hall and Mr. Ernesto Altamirano of the IATTC staff coordinate the group and he invited all of those interested in contributing to this work. The intention is to have an initial draft of the form in the same week and work on a final form in the Basecamp site.

8. Identification of potential FAD management measures: pros and cons

The group revisited item 8 of the agenda with a presentation by Dr. Martin Hall on potential management objectives. He highlighted as priorities the following five:

1. Controlling / reducing effort
2. Reducing bigeye catches.
3. Reducing bycatch in general
4. Reducing entanglement in FADs
5. Reducing floating debris

Other possible measures were discussed, among others, the following:

- Deploying biodegradable and non-entangling FADs.
- If the experiments continue to show that there are no differences between long and short tails, promoting the use of short tails.
- Continuing research on sorting grids.
- Studying the areas / periods of FADs deployment that produce a high proportion of catch of bigeye.
- Studying drift patterns for the protection of special areas (Galapagos).
- Identifying captains who catch a few bigeye, but much tuna, and use their experience to introduce a management change, in order to achieve a more selective fishery.
- Managing bigeye tuna possibly through establishing a total quota, implementing individual vessel limits , and quotas for yellowfin and bigeye tunas.

- Eventually requiring that fishing on bigeye be halted when limits are reached, or in certain areas.
- Developing a system of best practices and communicate them to fleets and crews.
- Transfer of FADs satellite positions.
- Limiting the number of sets with FADs. Charging a fee for each FAD.
- Including the use of tender vessels to retrieve FADs and avoid ecological damage.

Some participants stressed the importance of prioritizing potential objectives and management measures, paying special attention to those that can be effective in the short term, but they should be based on the best available science. Participants were reminded of the limitations that the group was facing regarding their work on recommendations for management measures, and consequently a proposal for extending the mandate of the group in Resolution C-15-03 will be presented at a IATTC meeting.

One participant stated that the decision to prioritize and identify management measures could take a long time, and due to the urgent need to implement measures, freezing the number of sets on FADs should be envisaged. Other participants noted that freezing the number of sets would be a good option, in addition to the fact that it would be possible to evaluate the performance of captains, as well as encourage and support the work of fishermen in the search for solutions.

6. Development Plan of work of the Working Group for 2016-2017

The coordinator of the group proposed to incorporate the following Plan of work:

- to continue recollecting information on FADs in the EPO.
- To monitor activities related to FADs in other RFMOs.

He also mentioned that if the group's mandate was extended, it would be important to work in the following items:

- Important and common definitions related to FADs.
- Identification and review of possible regulatory measures on FADs.
- Prepare a research plan on FADs for the region.

The importance of collaborating and working on this issue with other tuna commissions was highlighted.

One participant reminded the group that the current resolution states that the group should report the results of its work to the Scientific Advisory Committee in 2017, before starting to design recommendations on management measures, reason for which work should be limited for now to what is strictly indicated in Resolution C-15-03.

7. Research priorities

The importance of developing a list of research priorities, and of those which are already being undertaken was discussed. Among the research work that could be undertaken, the following were discussed:

- Monitoring and data collection
- FADs and logs inventory
- FADs use track record
- Catches of tropical tunas with FADs
- Catches of small tunas (bigeye and yellowfin tuna)

- Other species vulnerable to the use of FADs: sharks, turtles, stingrays

Mention was made of the possibility of establishing a small working group to identify research priorities, and of the importance to define who these research priorities would be directed to, in addition to considering the work already being undertaken.

It was noted that the group would be a good framework to work, and could offer opportunities for success as it comprises people from the industry, the fleet, scientists, and Governments personnel dealing with management. However, it is necessary that any work related to the working group should be done in conjunction with the Commission, both with the scientific staff as well as with members, in order to ensure good results and to carry out the work in an orderly manner.

It was recalled again that it was necessary to amend the mandate of the group to include a work plan, as well as the existing proposal, which will be reviewed during the 90th IATTC meeting.

8. Recommendations to the Commission

The Group did not issue recommendations since it is not within its mandate, as currently stipulated in Resolution C-15-03.

9. Other matters

One participant mentioned that this group could meet in October, if there is an extraordinary meeting of the IATTC of at that time.

10. Adjournment

The coordinator adjourned the meeting at 1:15 on June 26, 2016.