TECHNICAL AND COMPLIANCE COMMITTEE
Nineteenth Regular Session
20 – 26 September 2023
Pohnpei, Federated States of Micronesia

PROGRESS OF FADMO-IWG PRIORITY TASKS FOR 2023

WCPFC-TCC19-2023-16
20 September 2023

FADMO-IWG

TECHNICAL AND COMPLIANCE COMMITTEE
NINETEENTH REGULAR SESSION

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20-26 September 2023

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WCPFC-TCC19-2023-16

Prepared by the FADMO-IWG Chair and the Secretariat

PURPOSE

1. The purpose of this paper are to i) inform TCC19 of the SC19 recommendations related FADMO-IWG Priority Task for 2023, ii) forward SC19-2023/EB-WP-13: Progress of FADMO-IWG Priority Tasks for 2023 (as attached to this paper), iii) request TCC19 for any inputs related to timeline for the stepwise introduction of biodegradable FADs, implementation of paragraphs 21 and 22 of CMM 2021-01 and iv) provide needed guidance/actions.

SC19 RECOMMENDATIONS

2. **SC19 recommended that the FADMO-IWG and TCC review the timelines for the stepwise introduction of biodegradable dFADs considering the expected outcomes of projects related to the design, cost-effectiveness and performance of biodegradable dFADs (e.g. jelly FADs) in the WCPO and other oceans.**
3. SC19 viewed that moving to biodegradable FADs is important for reducing marine pollution and other impacts. However, SC19 noted that it is challenging for some CCMs, especially for purse seine operators that are going through a major process of eliminating netting in FADs, to meet the non-entangling requirement for 2024 and further noted that trials for biodegradable FADs are still ongoing. In this regard SC19 noted that, for some CCMs, the year 2025 to start the transition to biodegradable FADs implementation may not be viable.
4. SC19 noted IATTC's biodegradable FAD implementation program, which includes timelines with the mandatory use of categories I to IIIb by 2026 (Table FAD-1); and categories I to II by 2029, which could be reviewed by TCC and the FADMO IWG for consideration in the WCPO.

TABLE FAD-1: Preliminary categories of drifting FADs biodegradability levels (from non-biodegradable to 100% biodegradable) for the gradual implementation of biodegradable drifting FADs. *In year X, FADs of either category III(a) (biodegradable tail) or/and category III(b) (biodegradable raft) are required/implemented simultaneously*.

Categories[1]	**Potential Timeline** *(Suggestion 1)*	**Potential Timeline** *(Suggestion 2)*	**Remarks**
Category I. The FAD is made of 100% biodegradable materials.	Year X + 3	Year X + d	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category II. The FAD is made of 100% biodegradable materials except for plastic-based flotation components (e.g., plastic buoys, foam, purse-seine corks).	Year X + 2	Year X + c	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III(a). The subsurface part of the FAD is made of 100% biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).	Year X	Year X +b	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III(b). The subsurface part of the FAD contains non-biodegradable materials, whereas the surface part is made of 100% biodegradable materials, except for, possibly, flotation components.	Year X	Year X +a	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category IV. The surface and subsurface parts of the FAD contain non-biodegradable materials.	Current	Year X	

Note* These definitions do not apply to electronic buoys attached to FADs to track them.

5. SC19 recommended the FADMO IWG and TCC consider incentivising the use of biodegradable dFADs.

6. SC19 noted that some CCMs suggested one example of an incentive could be to allow biodegradable dFADs to be deployed during the FAD closure.

7. SC19 noted the limitation in the scientific analyses of FAD tracking data due to the current incomplete data. SC19 noted the importance of complete FAD tracking data, including for historical periods, to support scientific analyses to detect trends in dFAD use; to evaluate the effectiveness of paragraph 21 of the Tropical Tuna Measure (CMM 2021-01); to determine the origin of FADs and buoys found stranded; and to explore spatial management options to reduce stranding events.

8. SC19 supported the suggestion of the FADMO IWG on requiring the provision of the daily location records from buoys attached to dFADs to be provided, including historical periods, with research organizations (SPC), with research organizations within CCMs, or with the Commission

9. SC19 noted that, based on the information available, no vessel monitored more than 350 active buoys per day (the current buoy number limit under CMM 2021-01), with 90% of the vessels monitoring less than 130 buoys per day. It was noted these results were limited to the fleets that have provided tracking information since January 2023 and some differences for at least one fleet have been noted. **SC19 recommended that the FADMO IWG and TCC further discuss the active FAD buoy limit and provide advice to TTMW4 and the Commission on this limit**.

[1] The Categories were renumbered as follows: Category III = Category III(a); Category IV = Category III(b) and Category V = Category IV

10. **SC19 recommended that options should be developed by the FADMO IWG and TCC for reporting the number of active buoys per vessel (paragraph 21 of CMM 2021-01); and to develop processes to i) report the number of dFADs and buoys deployed and retrieved per year; ii) report lost and abandoned dFAD; and iii) to eventually abandon and deactivate buoy communication (paragraph 22 of CMM 2021-01).**

11. SC19 highlighted the need for in-situ data collection to better quantify FAD stranding events and the impacts of FADs on marine and coastal environments; and encouraged the expansion of the in-country stranded FAD data collection programs to other CCMs.

12. SC19 highlighted the need to promote FAD retrieval, preferably by the owner of the buoy attached, and eventually through dedicated programs, before FADs are abandoned or lost and ultimately before FADs reach coastal areas. **SC19 recommended that options for increased FAD detection and retrieval should be considered, including economic aspects and standards required for programs to be effective. SC19 recommended that a FAD recovery program/strategy be an agenda item for the FADMO IWG.**

13. SC19 supported the Pacific-wide collaboration on dFAD research, in particular on harmonising data collection processes, increasing non-confidential data exchanges and collaborating on data analyses.

SCIENTIFIC COMMITTEE
NINETEENTH REGULAR SESSION

Koror, Palau
16 - 24 August 2023

PROGRESS OF FADMO-IWG PRIORITY TASKS FOR 2023[2]

WCPFC-SC19-2023/EB-WP-13

FAD Management Options Intersessional Working Group

[2] Refer to the attached FADMO-IWG8-01

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

FAD MANAGEMENT OPTIONS INTERSESSIONAL WORKING GROUP EIGHTH SESSION

EMAIL CORRESPONDENCE
28 April 2023 – 19 July 2023

FADMO-IWG PRIORITY TASKS FOR 2023[3]

FADMO-IWG8-01

A. PURPOSE

1. This paper provides background information on the priority tasks of the FAD Management Options IWG to progress its work this 2023 which includes:

   i. outcomes from SC18, TCC18, and WCPFC19 related to biodegradable FADs and areas to be addressed.

   ii. implementation of paragraph 21 of CMM 2021-01 and

   A flag CCM shall ensure that each of its purse seine vessels shall have deployed at sea, at any one time, no more than 350 drifting Fish Aggregating Devices (FADs) with activated instrumented buoys. An instrumented buoy is defined as a buoy with a clearly marked reference number allowing its identification and equipped with a satellite tracking system to monitor its position. The buoy shall be activated exclusively on board the vessel. A flag CCM shall ensure that its vessels operating in the waters of a coastal State comply with the laws of that coastal State relating to FAD management, including FAD tracking.

   iii. implementation of paragraph 22 of CMM 2021-01

   CCMs shall also encourage vessels to:
   (a) responsibly manage the number of drifting FADs deployed each year;
   (b) carry equipment on board to facilitate the retrieval of lost drifting FADs;
   (c) make reasonable efforts to retrieve lost drifting FADs; and
   (d) report the loss of drifting FADs, and if the loss occurred in the EEZ of a coastal State, report the loss to the coastal State concerned.

2. The SC is requested to review and provide recommendations/guidance to be considered by the FADMO-IWG, TCC, or the Commission.

[3] Refer to Attachment 1: FADMO-IWG8 Summary Report for more details of the FADMO-IWG discussions.

B. BACKGROUND

3. In November 2020, the FAD Management Options Intersessional Working Group (FADMO-IWG) finalized a draft *Guidelines for non-entangling and biodegradable FADs*[4], which was forwarded to the Commission.

4. In the SC17 online discussion forum (SC17-ODF), there was general support for strengthening the existing provisions to reduce entanglement on FADs and more work is needed for the use of biodegradable materials on FADs. At TCC17, there was general support for the use of non-entangling and biodegradable FAD materials and research on the development and application of suitable biodegradable materials in FAD construction including the use of locally available materials.

5. In 2021, the FADMO-IWG recommended (WCPFC18-2021-FADMO-IWG5-01):

- the use of biodegradable materials in the construction of FADs to reduce the number of synthetic debris in the environment but acknowledged that more research is needed on the development and application of suitable biodegradable materials and FAD designs in FAD construction including the use of locally available materials;
- that CCMs continue to encourage its flagged vessels to use available biodegradable materials on FAD construction; and
- that the Commission considers developing a definition of "biodegradable FAD", ideally in consultation with other t-RFMOs.

6. Noting the report and recommendations of the FADMO-IWG, the Commission established a prohibition on the use of mesh net for any part of a FAD, from January 1, 2024, and agreed to further consider other issues related to FADs (biodegradable FADs, the impact of FADs, and FAD numbers)[5].

7. The Commission adopted a revised Tropical Tuna Measure (CMM 2021-01) at WCPFC18 in December 2021 and tasked the Scientific Committee to provide specific recommendations on other issues (Paragraph 19):

> *19. The Scientific Committee shall continue to review research results on the use of biodegradable material on FADs and shall provide specific recommendations to the Commission in 2022 including on a definition of biodegradable FADs, a timeline for the stepwise introduction of biodegradable FADs, potential gaps/needs and any other relevant information.*

8. The FADMO-IWG has started to consider the issues specified in paragraph 19 of CMM 2021-01. Along with the FADMO-IWG Chair's work plan (Attachment A, WCPFC Circular 2022/25 dated 11 May 2022), the paper prepared by the FADMO-IWG was submitted to SC18 (SC18-EP-IP-13) and TCC18 (WCPFC-TCC18-2022-25). This paper includes i) the definition of biodegradable FADs, ii) the timeline for the stepwise introduction of biodegradable FADs, iii) potential gaps/needs, and iv) any other relevant information.

9. WCPFC19 considered the outcomes from SC18 and TCC18. The Commission provided the following recommendations:

[4] FADMO-IWG-04-2020-WP-02; Attachment K, WCPFC17 Summary Report.
[5] Paragraph 141, WCPFC18 Summary Report

Paragraphs 23 – 24, WCPFC19 Outcomes Document

23. The Commission supported the SC18 and TCC18 recommendations for the IATTC definition of biodegradable and categories of biodegradable FADs. The Commission further noted that the FADMO-IWG will further examine the categories of biodegradable FADs, timeline for the stepwise introduction of biodegradable FADs, potential gaps and other relevant information.
24. The Commission tasked the FADMO-IWG with assistance from the Secretariat and the SSP to review the effectiveness of paragraph 22 of CMM 2021-01 and other FAD related issues and incorporate into its 2023 work plan.

10. The FADMO-IWG started to discuss the priority tasks that were identified for 2023 noting the recommendations from SC, TCC, and the Commission.

C. PRELIMINARY VIEWS ON THE STEPWISE INTRODUCTION OF BIODEGRADABLE FADs

Table 1. Preliminary categories of FADs biodegradability levels (from non-biodegradable to 100% biodegradable) for the gradual implementation of biodegradable FADs. *In year X, FADs of either category III(a) (biodegradable tail) or/and category III(b) (biodegradable raft) are required/implemented simultaneously*

Categories[6]	**Potential Timeline** *(Suggestion 1)*	**Potential Timeline** *(Suggestion 2)*	**Remarks**
Category I. The FAD is made of 100% biodegradable materials.	Year X + 3	Year X + d	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category II. The FAD is made of 100% biodegradable materials except for plastic-based flotation components (e.g., plastic buoys, foam, purse-seine corks).	Year X + 2	Year X + c	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III(a). The subsurface part of the FAD is made of 100% biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).	Year X	Year X +b	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III(b). The subsurface part of the FAD contains non-biodegradable materials, whereas the surface part is made of 100% biodegradable materials, except for, possibly, flotation components.	Year X	Year X +a	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category IV. The surface and subsurface parts of the FAD contain non-biodegradable materials.	Current	Year X	

Note:
** These definitions do not apply to electronic buoys attached to FADs to track them.*
*** These categories and associated potential timelines relate to drifting FADs only.*

Key Points for SC:

[6] The Categories were renumbered as follows: Category III = Category III(a); Category IV = Category III(b) and Category V = Category IV

11. Some FADMO-IWG members viewed that the year 2025 maybe too ambitious to start the gradual implementation of biodegradable FADs taking into account the various categories, though some viewed that 2025 as reasonable.

12. As discussed by the FADMO-IWG there were two suggestions on the potential timeline for implementation of biodegradable FADs noting the different categories. The FADMO-IWG needs some views/guidance from SC19 in determining the year (X) or the timing to start the gradual implementation of biodegradable FADs, considering the ongoing research (e.g. Project 110) and other initiatives.

D. POTENTIAL GAPS/ RESEARCH NEEDS

13. The FADMO-IWG also received several suggestions from its members on areas of future research (WCPFC18-2021-FADMO-IWG5-01-Attachment C).

- *The design of the FAD is crucial to reduce stress on the structure and increase their lifetime. This is especially important for biodegradable FADs, as materials might be more susceptible to physical stress. The correct assessment of the flotation and weight distribution in the design of the FAD is a crucial factor to extend its working lifetime. If those parameters are not well calculated and placed, the tension and torsion suffered by the structure will result in substantial damages, and the submerged appendage is more likely to detach from the raft — reducing FAD's lifetime and aggregation effectiveness. Results from ongoing studies on new designs such as the jelly-FAD type structure should be reviewed by the SC.* There are ongoing studies related to these areas and progress to these works are detailed in the following papers submitted to SC18 for its review.
    - SC18-EB-IP-17: G. Moreno, J. Salvador, I. Zudaire, J. Murua, J. Pelegrí, J. Uranga, H. Murua, M. Grande, V. Restrepo. The jelly-FAD: A paradigm shift in biodegradable FAD design
    - SC18-EB-IP-01: Escalle et al. Updates from Project 110: WCPFC Non-Entangling and Biodegradable FAD trial*;* which includes a review (in Appendix 2) of all the Non-Entangling and Biodegradable FAD trials that have been performed worldwide, as well as the potential biodegradable materials that could be used.
- *For FADs to drift slowly, the tail or drogue should be three-dimensional and symmetric and should be placed in the deeper part of the FAD.*
- *The physical impact of FAD structures on the ecosystem is proportional to their size. Current dFAD structures are very large and bulky, which makes the logistics for their retrieval and storage difficult. Research to reduce the mass (i.e., size, volume and weight) of traditional and biodegradable dFAD structures is required. This would also reduce price costs in materials per FAD.*
- *Due to the high incidence of dFAD loss through change of hands, sinking, beaching or out-of-reach deactivations, trials of experimental biodegradable dFADs in real fishing conditions need to test great quantities in order to obtain statistically significant results. Fishers when testing individually biodegradable dFADs, should share with scientists, data from echo-sounder buoys attached to biodegradable dFADs (i.e., position and biomass associated), to follow remotely the evolution of the biodegradable FADs that are not visited by fishers, and thus still get results on their performance.*

14. It was also suggested that additional research into FAD-relevant oceanography, drift, entrainment, connectivity, and ecosystem impacts are important. In the context of biodegradable FADs, understanding how biodegradable FADs might break up and be differently impacted by currents over their lifetime will

be important. Characteristics linked to the biodegradable FADs, such as drogue characteristics are also key parameters to monitor.

15. Noting other views that progress has been made on the concept of non-entangling FADs, the gradual disintegration of FADs including those with biodegradable parts will continue to pose an unquantified risk to cetaceans. A non-synthetic rope would certainly be an improvement as it would disintegrate in time and reduce risk. However, how long various non-synthetic materials take to degrade in the marine environment is unknown. Research on how these ropes would degrade would be useful including potential research into the known lifespan of potential components of a 'weak link' approach to FAD disintegration to promote sinking.

16. There was also a suggestion that research on biodegradable FADs will need to be incorporated into the stepwise timeline – as the outcomes of this research will be fundamental to decisions on biodegradable FADs. Such considerations would include: i) What are the implications of the use of biodegradable materials for the design of an effective FAD (e.g. size, depth); ii) What linkages can be made to improve tracking of FADs – for example, to ensure retrieval of electronic buoys once a FAD is no longer functional due to degradation; iii) How accessible and affordable are alternative biodegradable materials; and iv) Need to ensure that new biodegradable FAD designs do not contribute to navigational hazards.

17. It was also suggested that due to the slow nature of progressing research on drifting FADs, it was suggested that Members consider testing designs and materials on anchored FADs to gather information on durability.

18. There was another suggestion that the lack of detailed FAD position and biomass data for scientific use was also identified as a gap. It was noted that FAD positions are required by PNA and shared with Scientific Services Provider (SSP). WCPFC could consider requiring FAD daily position throughout the WCPFC Convention Area (CA). Same with echosounder buoy estimates, these are very useful to science and help inform stock assessments. The SSP has received such data from some fleets participating in voluntary pilots. WCPFC could also make this a requirement covering the entire WCPFC CA.

19. Other sources of information related to potential gaps include:

- Roadmap to Biodegradable Plastics - Current State and Research Needs: https://pubs.acs.org/doi/10.1021/acssuschemeng.1c00801
- Dempster T., Taquet M., 2004, Fish aggregation device (FAD) research: gaps in current knowledge and future directions for ecological studies. Rev. Fish Biol. Fish. 14, 21–42
- In 2022, the Ad-Hoc Permanent Working Group on FADs (FADWG) at the IATTC SAC 6th FADWG meeting recommended to "revise, as needed, IATTC data collection methods and tools, including fisheries observer data, so that the gradual implementation of biodegradable FADs in the EPO can be effectively monitored" which is a common potential gap at different RFMOs.

Key Point for SC:

20. SC19 is requested to consider items identified in this section in developing future research initiatives related to FAD issues.

E. CMM 2021-01 PARAGRAPH 21

21. A flag CCM shall ensure that each of its purse seine vessels shall have deployed at sea, at any one time, no more than 350 drifting Fish Aggregating Devices (FADs) with activated instrumented buoys. An instrumented buoy is defined as a buoy with a clearly marked reference number allowing its identification and equipped with a satellite tracking system to monitor its position. The buoy shall be activated exclusively on board the vessel. A flag CCM shall ensure that its vessels operating in the waters of a coastal State comply with the laws of that coastal State relating to FAD management, including FAD tracking.

21. Related to paragraph 21 (referred to as paragraph 23 in earlier tropical tuna measure); all CCM were assessed as COMPLIANT to this obligation. This means they have national laws/rules/ regulations supporting the implementation of this paragraph. But there was no information, or it is not part of the assessment to report the maximum or average number of FADs with activated instrumented buoys deployed per vessel per month per year.

22. The SC paper that provides some analysis related to paragraph 21 was SC15-MI-WP-12: *Report on analyses of the 2016/2019 PNA FAD tracking programme*, it states that:

Regarding the number of buoys per vessel, for buoys with identified owners (62%), vessels monitored one to 350 active buoys per day or per month (Figure 13). However, the majority of vessels had less than 150 active buoys per month and less than 100 per day. It should be noted that these statistics correspond to the data submitted by fishing companies to PNA, so they are likely underestimates of the true number of active buoys. In addition, these patterns represent the activity of only 128 purse seine vessels (out of 254 purse seiners in the logsheet data for 2016–2018).

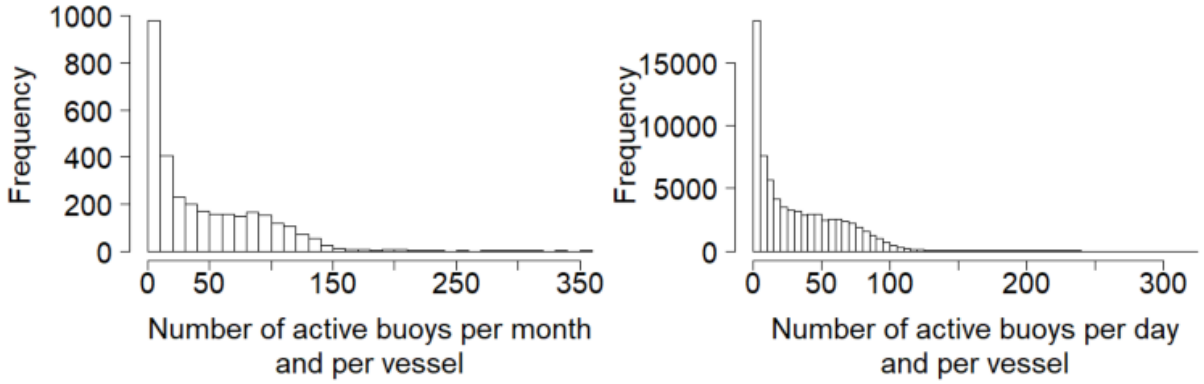

Figure 13. Histograms of the number of active buoys per month (left) or per day (right), per vessel (when vessel name was available) from 2016–2018, as recorded in the PNA FAD tracking data (see section 3.2. for estimated data submission rates).

Key Point for SC:

23. As shared by some FADMO-IWG members, providers of instrumented buoys can exchange their daily location records with research organizations (SPC), with CCMs or with the Commission (WCPFC) in order to evaluate the effectiveness of this requirement in paragraph 21 of CMM 2021-01 which is already being done in other t-RFMOs such as ICCAT, IOTC, and IATTC. SC19 is encouraged to provide some guidance if this option or another option may be considered by WCPFC in order to evaluate the effectiveness of the provision in paragraph 21 of CMM 2021-01 in limiting the number of dFADs with activated instrumented buoys per vessel per year.

F. CMM 2021-01 PARAGRAPH 22

22. CCMs shall also encourage vessels to:
(a) responsibly manage the number of drifting FADs deployed each year;
(b) carry equipment on board to facilitate the retrieval of lost drifting FADs;
(c) make reasonable efforts to retrieve lost drifting FADs; and
(d) report the loss of drifting FADs, and if the loss occurred in the EEZ of a coastal State, report the loss to the coastal State concerned.

24. Paragraph 22 has never been assessed yet by TCC. This is a new paragraph in the Tropical Measure which was not included in the previous tropical tuna measure. The way paragraph 22 was worded, it seems it is not a mandatory obligation noting the text *"CCMs shall also encourage vessels to …"*. Since this was not assessed we do not know how CCMs are currently implementing this provision.

Key Point for SC:

25. **As noted by FADMO-IWG members, this paragraph is non-binding and further work needs to be done to progress the issues identified which includes i) reporting of the total number of dFADs and buoys deployed and retrieved per year, ii) procedure to report lost and abandoned dFAD including consideration of real-time reporting to coastal states; and iii) process or conditions to eventually abandon and deactivate buoy communication. SC19 may give their views/suggestions related to these issues that may be relevant to scientific work.**

ATTACHMENT 1

The Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean

8th FAD Management Options Intersessional Working Group (FADMO-IWG8)

Email Communication
28 April – 19 July 2023

SUMMARY REPORT

I. INTRODUCTION

1. The Chair of the FAD Management Options Intersessional Working Group (FADMO-IWG), Mr. Jamel James (FSM) has advised to reconvene the FADMO-IWG activities through email communications, this information was circulated through the WCPFC Circular 2023-12 dated 24 February 2023.

2. The Chair also emphasized that he wanted to focus on reviewing available information related to i) biodegradable FADs and ii) instrumented buoys mentioned in CMM 2021-01 of the Tropical Tuna Measure.

II. EMAIL COMMUNICATIONS ON THE FADMO-IWG PRIORITY TASKS FOR 2023

3. The Chair sent the 1st email communication to the working group on 28 April 2023. The following were identified by the Chair as priority tasks of the FADMO-IWG for 2023:

   iv. review the outcomes from SC18, TCC18, and WCPFC19 related to biodegradable FADs and areas to be addressed.

   v. implementation of paragraph 21 of CMM 2021-01 and

   A flag CCM shall ensure that each of its purse seine vessels shall have deployed at sea, at any one time, no more than 350 drifting Fish Aggregating Devices (FADs) with activated instrumented buoys. An instrumented buoy is defined as a buoy with a clearly marked reference number allowing its identification and equipped with a satellite tracking system to monitor its position. The buoy shall be activated exclusively on board the vessel. A flag CCM shall ensure that its vessels operating in the waters of a coastal State comply with the laws of that coastal State relating to FAD management, including FAD tracking.

   vi. implementation of paragraph 22 of CMM 2021-01

CCMs shall also encourage vessels to:
(a) responsibly manage the number of drifting FADs deployed each year;
(b) carry equipment on board to facilitate the retrieval of lost drifting FADs;
(c) make reasonable efforts to retrieve lost drifting FADs; and
(d) report the loss of drifting FADs, and if the loss occurred in the EEZ of a coastal State, report the loss to the coastal State concerned.

4. The Chair noted that the FADMO-IWG is expected to review and provide recommendations to be considered by the SC, TCC, and the Commission.

5. The Chair also offered some options to progress the discussions of the FADMO-IWG on each of the identified tasks.

6. The Chair further suggested that the working paper on the FADMO-IWG Priority Tasks be submitted to SC19 for its consideration.

7. The follow-up emails of the Chair to gather comments and views from FADMO-IWG were sent on 19 May, 14 June and 7 July 2023

III. PRELIMINARY VIEWS ON THE STEPWISE INTRODUCTION OF BIODEGRADABLE FADs

8. The following were comments from CCMs, and observers related to **Table 1.** Preliminary categories of FADs biodegradability levels (from non-biodegradable to 100% biodegradable) for the gradual implementation of biodegradable FADs.

9. The United States notes that there are a number of trials on biodegradable FADs that are currently underway, and results from these trials would be helpful to determine the feasibility of this implementation timeline. The United States would prefer to wait until the results of the trials are available, before defining the implementation timeline.

10. Japan wanted to seek clarification on the gradual implementation or shifting between Category IV to Category III. For example, while Category IV requires biodegradable material in the surface part except for float, Category III allows non-biodegradable material in the surface part. Japan also seeks clarification on what is meant by "and subject to review based on available information and availability of materials" after the commencement of Year X. For example, once Year X is determined and commenced, does this language suggest that Year X+1 will be "subject to review based on available information"?

11. ISSF suggested that Categories III and IV are basic options for progressing toward biodegradability. Category III starts with the tail, and Category IV starts with the raft. In that sense, one practical option would be to have both implemented in Year X+1 and add a footnote that explains the optional nature "either-or".

12. Chinese Taipei supports the inclusion of Category V for advancing the issue of biodegradable FADs in a stepwise manner and agrees that Year X is an important subject awaiting further discussion in future communication. Chinese Taipei also suggests that the intervals between different stages (namely Y for

Year X + Y in Table 1) be subject to further discussion, taking into consideration the status of implementation, available information, and availability of materials, as indicated in the remarks.

13. EU has provided edits that were reflected in the Table below.

Table 1. Preliminary categories of FADs biodegradability levels (from non-biodegradable to 100% biodegradable) for the gradual implementation of biodegradable FADs

Categories	Potential Timeline	Remarks
Category I. The FAD is made of 100% biodegradable materials.	Year X + 3	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category II. The FAD is made of 100% biodegradable materials except for plastic-based flotation components (e.g., plastic buoys, foam, purse-seine corks).	Year X + 2	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III. The subsurface part of the FAD is made of 100% biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).	Year X	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category IV. The subsurface part of the FAD contains non-biodegradable materials, whereas the surface part is made of 100% biodegradable materials, except for, possibly, flotation components.	Year X	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category V. The surface and subsurface parts of the FAD contain non-biodegradable materials.	Current	

Note: These definitions do not apply to electronic buoys attached to FADs to track them.

14. EU raised the possibility that companies and fishers will probably ask what happens with the FADs that have been deployed in one year and are still in the water next year. For example, if a non-biodegradable FAD (Category V) has been deployed in December 2025 does that mean it will be an infraction to fish on it in January 2026 when Category IV FADs are required? Will fishers need to take them out of the water to replace materials? These conditions should be clear in the future CMM.

15. The United States shares the concerns raised by the EU and based on any recommendations from TCC18 on interpreting non-entangling FAD provisions, the future CMM should consider language that would specify that it would be applicable to FADs deployed from the agreed date.

16. Chinese Taipei also agrees that the EU's inquiry is an important topic that requires clarification and supports further discussion.

17. ISSF viewed Year 2025 to be reasonable. However, some fleets may prefer going directly from the current "lesser entangling" FADs to biodegradable. Therefore, one option would be to make X=2025 mandatory, but the text also strongly encourages CCMs to initiate the transition in 2024.

18. Canada viewed that perhaps a more effective method for decreasing the impacts of FADs would be to encourage the prioritized application of biodegradable components (and other technologies) that will disable the gear if control is lost.

19. The United States is supportive of the overall concept of the table and suggests language is included to make it clearer that the categories are minimum standards and operators are free to deploy FADs that exceed the thresholds specified at a certain timeline. The United States also supports the change that would encourage the timeline for Categories III and IV to be simultaneous.

20. Solomon Islands (SI) suggested that the Commission needs to give consideration to differential treatment of drifting FADs vs. anchored FADs, particularly with respect to the use of biodegradable materials. This is an important issue for the Solomon Islands, given the domestic purse seine and pole-and-line fisheries are heavily reliant on the use of AFADs. Similarly, this is likely an important issue for PNG and Indonesia whose domestic tuna fleets also uses AFADs. SI also shared that the IOTC is the first RFMO to afford differential treatment to AFADs, adopting a stand-alone AFADs measure in February 2023 which recognizes that, unlike drifting FADs, AFADs should be constructed "from materials that will ensure increased longevity so that they continue to retain their integrity for the longest lifespan possible" (see attached for adopted IOTC proposal from Maldives & Kenya).

21. On the preliminary categories of FADs biodegradability levels, SI suggested that to avoid confusion, it should be made explicit that Categories III and IV are an 'either/or' option; alternatively, categories III and IV could be re-numbered to be III (a) and III (b). It should be made explicit that these categories and associated potential timelines relate to drifting FADs only.

22. SI viewed that at this point in time, research is still very much underway to identify viable biodegradable FAD designs and suitable natural/biodegradable materials which are readily available in commercial volumes at a reasonable price to fishing companies. This needs to be carefully considered when determining Year X and 2025 may be too ambitious.

23. After the 2nd email communication, Chinese Taipei reiterated their suggestions in Table 1 which are reflected below.

Table 1. Preliminary categories of FADs biodegradability levels (<u>from non-biodegradable</u> to 100% biodegradable) for the gradual implementation of biodegradable FADs

Categories	Potential Timeline	Remarks
Category I. The FAD is made of 100% biodegradable materials.	Year X + d	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials

Category II. The FAD is made of 100% biodegradable materials except for plastic-based flotation components (e.g., plastic buoys, foam, purse-seine corks).	Year X + c	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category III. The subsurface part of the FAD is made of 100% biodegradable materials, whereas the surface part and any flotation components contain non-biodegradable materials (e.g., synthetic raffia, metallic frame, plastic floats, nylon ropes).	Year X +b	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category IV. The subsurface part of the FAD contains non-biodegradable materials, whereas the surface part is made of 100% biodegradable materials, except for, possibly, flotation components.	Year X +a	Year X will be determined by the WCPFC and subject to review based on available information and availability of materials
Category V. The surface and subsurface parts of the FAD contain non-biodegradable materials.	Year X	

Note: These definitions do not apply to electronic buoys attached to FADs to track them.

24. SPC viewed that there is a need to discuss in order to monitor the categories of FAD biodegradability noting that the current data collected in GEN-5 does not allow it. The current PNA FAD logsheet is more detailed but based on the skipper declaration. The current categories can be found in the paper of L. Escalle, J. Mourot, P. Hamer, S.R. Hare, N.B. Phillip, G.M. Pilling, Towards non-entangling and biodegradable drifting fish aggregating devices – Baselines and transition in the world's largest tuna purse seine fishery, Mar. Policy. 149 (2023) 105500. https://doi.org/10.1016/J.MARPOL.2023.105500. This paper will be presented to the Scientific Committee (SC).

25. ISSF was flexible with USA's suggestion that Categories III and IV could be implemented simultaneously.

IV. POTENTIAL GAPS/ RESEARCH NEEDS

26. USA suggested that due to the slow nature of progressing research on drifting FADs, the United States suggests that Members consider testing designs and materials on anchored FADs to gather information on durability.

27. It was identified that additional research into FAD-relevant oceanography, drift, entrainment, connectivity, and ecosystem impacts is important. In the context of biodegradable FADs, understanding how biodegradable FADs might break up and be differently impacted by currents over their lifetime will be important. Characteristics linked to the biodegradable FADs, such as drogue characteristics are also key parameters to monitor. EU reiterated that this knowledge gap is very important and should be studied preferably through collaborative research with fishers so that if the drift of biodegradable FADs is not functional for fishers (i.e., behave very differently from current Category V FADs) they can be adjusted for required fishing.

28. EU also noted that the assessment of current entangling rate scenarios, in particular with the introduction of non-entangling material (non-meshed material) in 2024, will help determine the risk of entanglement or non-observed mortality associated with the usage of FADs.

29. On the retrieval of electronic buoys, the EU pointed out that because FADs may drift to distant locations outside of fishing zones, it should be considered that this retrieval is frequently impossible. Additionally, buoys are continuously deactivated, making it impossible for users to determine the location of lost FADs. In addition to retrieval of FAD buoys from the water, it should be considered what should be done once back in port to prevent land pollution (e.g., buoy recuperation programs for vessels to reuse them, or if discarded have in-port recycling facilities).

30. SPC commented that discussions should be open on whether buoy deactivation is allowed, keeping in mind that the buoy limit might limit the ability of fishing companies to continue monitoring buoys, when outside fishing grounds. Deactivation could be prohibited within a certain area, unless there is a signal loss or a stranding event; and/or an area outside the fishing grounds could be defined, as to where buoys do not count as "active FAD", to allow fishers to monitor FADs even outside fishing grounds.

31. EU reiterated that the impact of the FADs in coastal and reef ecosystems should be evaluated and how the evolution to biodegradable designs would reduce them. For that characterization of FAD drifts and evaluation of beaching rates seems necessary.

32. SPC shared that a paper will be presented to SC on the regional data collection program on stranded FADs.

33. SPREP raised concern on how the Commission will treat retrieval of fully biodegradable FADs, noting that the length of time to complete disintegration is a critical issue for preventing ecosystem damage and entanglement. SPREP further suggested that while buoys can be and often are removed while FADs are left to drift, in regard FADs should also be required to be marked.

34. ISSF noted that another gap is the lack of detailed FAD position and biomass data for scientific use. ISSF further noted that positions, are required by PNA and shared with the SSP (SPC). But the WCPFC does not require them, and important black holes exist from the high seas and EEZs outside PNA. ISSF suggests that WCPFC could consider requiring daily positions throughout the WCPFC Convention Area (CA). While on the echosounder buoy estimates, these are very useful to science and help inform stock assessments. WCPFC could also make this a requirement covering the entire WCPFC CA.

V. CMM 2021-01 PARAGRAPH 21

35. EU shared that providers of instrumented buoys exchange their daily locations with research organizations in CCMs or the Commission in ICCAT, IOTC, and IATTC in order to evaluate requirements in paragraph 21, this could also be implemented in the WCPFC. EU also stated that the results of SC15-MI-WP-12: *Report on analyses of the 2016/2019 PNA FAD tracking programme*, are not the same for their fleet.

36. Noting EU's comments SPC suggested that historical buoy position data should be made available to WCPFC or SSP to implement more detailed and precise estimates.

37. Japan supports the idea to discuss possible amendment of the current number/limit of 350 at this IWG while noting that paragraph 22 of the tropical tuna measure (TTM) mandates FADMO-IWG to review the effectiveness of this limit.

38. ISSF noted that none of the other RFMOs have a limit of 350 active FADs. Recommending a lower limit seems reasonable.

39. French Polynesia suggested that the Commission should not only focus on the limit of active FAD at any time but also on the annual limits of FADs deployed.

40. The PNAO considers that some clarification is needed on the term *"activation"*. In PNA instruments, "Activate" means enabling satellite communication services for a FAD Buoy by the FAD Buoy Service Provider. In our experience, "activation" is undertaken electronically and is often undertaken off the boat, and we do not see how this can be undertaken "exclusively on board the vessel". We also consider that this limit should be applied to buoys, not FADs since the number of FADs cannot be directly monitored, and to all buoys in the water, not just those that are activated, and that an operator should not be able to have a FAD deactivated in the Convention Area unless it has been reported as retrieved, stranded or lost for some other reason. In addition, it is not clear how this paragraph applies to buoys deployed by support vessels.

41. The PNAO has two comments on the number of dFADs as noted in paragraph 21 of CMM 2021-01:
a) the PNAO has not seen information to suggest that the limit is effective or would be effective at any number;
b) the PNA is implementing a substantial program of FAD management arrangements including a FAD buoy register attaching legal responsibility, a ban on deactivating buoys, buoy tracking, and reporting on buoy status. The PNAO does not support a lower limit on buoys in PNA waters at this time. If the limit is to be lowered, then PNA will determine how any limit should be applied in PNA waters, including preferential arrangements for PNA domestic vessels. However, PNAO could support a lower limit in the high seas since controls on FADs in the high seas are lower.

VI. CMM 2021-01 PARAGRAPH 22

42. The United States currently views paragraph 22 as nonbinding and therefore does not think this paragraph needs to be assessed by TCC. However, the United States thinks it would be important to consider how to incentivize the retrieval of FADs and would be open to continuing this discussion.

43. ISSF agrees that the text "encourage" makes these very weak. TCC could consider stronger language or some concrete actions such as in the IATTC where a number of FADs must be retrieved before the closed season. ISSF also shared that the new IOTC FAD measure (Res 23/02) has provisions on FAD retrieval that could serve as options for concrete actions for the FADMO IWG to consider.

44. French Polynesia also made the following suggestions to be considered in order to progress the implementation of paragraph 22:
    a. Procedure to report lost and abandoned dFAD, including alerting in real-time the coastal states.
    b. Process and conditions to eventually abandon FADs and deactivate buoy communication.

45. The PNAO agrees that paragraph 22 could not be assessed by TCC, at least within the CMR because it is non-binding but also supports additional steps to address the loss of FADs including that an operator should not be able to have a FAD deactivated in the Convention Area unless it has been reported as retrieved, stranded or lost for some other reason.

46. In the 3rd email communication, Chinese Taipei expressed that they anticipated that the discussion would be centered around issues of biodegradable FADs, as mandated by the WCPFC19 Summary report, and the topics outlined in paragraphs 21 and 22 of CMM 2021-01, namely the limit on the number of simultaneously deployed dFADs with activated buoys and encouragement for dFADs

retrieval. They noted that there are some emerging initiatives, including additional buoy data collection and requirements on FAD deactivation. While these proposals might align with the general tasks of the FADMO-IWG, these have only been recently introduced, and in their view, there is a still lack of management options with well-defined elements. Hence, they were unable to provide specific comments on these initiatives at this stage. Chinese Taipei welcomes and awaits further information on these issues, which will enable them to engage in more informed discussions on these subjects.

VII. CLOSE OF EMAIL COMMUNICATIONS

47. Since there were no additional comments raised, this email communication was closed on 19th July 2023.

ATTACHMENT A

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