



**THIRD MEETING OF THE FAD MANAGEMENT OPTIONS
INTERSESSIONAL WORKING GROUP**

**International Conference Centre
Majuro, Republic of the Marshall Islands
3RD October 2018**

Chairs Report

Contents

1. Chairs Introduction	2
2. FADMO-IWG-03 Recommendations and Proposed Minimum Guidelines	4
3. Welcome and opening	6
4. Review Terms of Reference and Intercessional activities.....	7
5. FAD Construction – Biodegradable and Non-Entangling	7
6. FAD Limit Numbers	10
7. Marking and Monitoring of FADs	11
8. FAD Research.....	12
9. Other Matters	13
10. Close.....	14
Attachment A - Adopted Agenda	15
Attachment B – Participants list	17
Attachment C – Discussion Starter Points	18

1. Chairs Introduction

In adopting CMM 2017-01, the Conservation and Management Measure for Bigeye, Yellowfin and Skipjack tuna, the Commission tasked the FAD IWG with providing the Commission with advice and recommendations on the following:

22. The Commission at its 2018 annual session, based on specific guidelines defined by the FAD Management Options Intersessional Working Group and advice from SC14 and TCC14 shall consider the adoption of measures on the implementation of non-entangling and/or biodegradable material on FADs.

23. 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.

24. The Commission at its 2018 annual session, based on consideration in the FAD Management Options Intersessional Working Group, shall review whether the number of FADs deployed as set out in paragraph 23 is appropriate.

Prior to the 3rd meeting of the FAD MO IWG, the IWG worked electronically, sharing information intersessionally, with presentations at SC14 and TCC14 of proposed minimum guidelines for non-entangling FADs and biodegradable FADs. SPC-OFP supported discussion with relevant papers and presentations for SC14 and the FAD MO IWG held in Majuro on the 3rd October 2018.

During intersessional work, there was a lot of interest in marking and tracking of FADs and also in FAD related research. However, noting the tasking from the WCPFC14, it was determined at the 3rd FAD MO IWG in Majuro to focus effort and resources on FAD Construction and FAD Limit Numbers.

During the 3rd FAD MO IWG, plenary and breakout sessions were held. The breakout period in the morning, although time consuming, was extremely effective in eliciting a range of views and ultimately developing recommendations to the Commission.

The Chair expresses his gratitude to Ingrid Giskes (Chair Global Ghost Gear Initiative) for her informative lunch time presentation.

During the afternoon the workshop lost a large number of participants to a rescheduling of flights and cautions regarding overbooking of seats on the plane. The remaining participants preferred to continue in plenary and were cautious in the drafting of subsequent recommendations. The Chair echoes the views expressed by several participants that it would

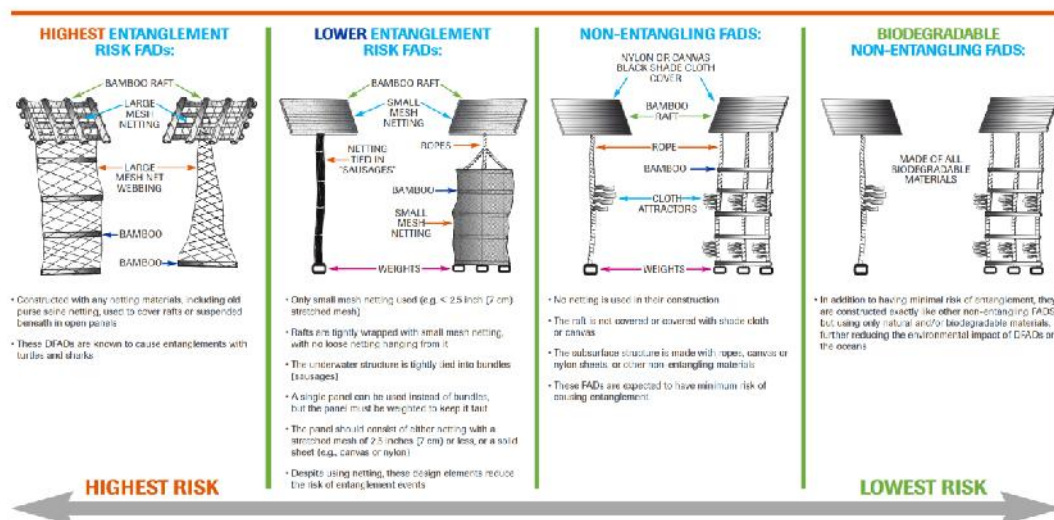
probably be more effective to hold the FAD MO IWG meeting before the SC Meeting with a view to feeding recommendations through that body of the Commission; this would allow a scientific review of the workshop outputs, and any workshop recommendations for research could be bundled into the SC Budget and Workplan with a priority ranking in relation to the other SC recommendations.

Finally, the Chair thanks all the participants for their enthusiastic engagement in the workshop process.

2. FADMO-IWG-03 Recommendations and Proposed Minimum Guidelines

FAD Construction (Non-entangling and Biodegradable)

1. The IWG recognised the need to continually review guidelines and approaches applied and adopted elsewhere with a view to ensuring best practice in the WCPO.
2. The IWG also recognised the need to consider the experiences from relevant ongoing initiatives in other tRFMOs.
3. The IWG recommends to WCPFC15 a phased approach to implementing best practice for biodegradable and non-entangling FAD designs, noting that guidelines for non-entangling designs exist, whilst research into biodegradable materials is ongoing.
4. The IWG noted that petroleum-based plastics can be non-biodegradable and damaging to the marine environment and should be avoided, to the extent possible, in the construction of FADs.
5. The IWG noted the need for the guidelines to be more prescriptive to facilitate better compliance monitoring, but not so prescriptive as to restrict innovation.
6. Based on existing guidelines and best practice the IWG recommends to WCPFC15 the following minimum guidelines, described as (lower entanglement risk FADs as detailed in the ISSF Guide for Non-Entangling FADs, see the diagram below); and when designing FADs the use of non-plastic and biodegradable materials should be prioritised.



7. It was further recognised by the IWG that there is an additional eco-friendly category of FAD construction i.e. the utilisation of reusable materials.
8. The IWG recommends that the Commission should prioritise appropriate research for bio-degradable and non-entangling FAD designs.

FAD Numbers

9. The IWG recommends that the Commission considers adopting objectives for FAD management with respect to defining an appropriate number of FADs per purse seine vessel or category [e.g. size] of vessel limiting FAD numbers; the IWG discussed potential objectives, i.e. reducing marine debris, limiting economic impact [through reduced CPUE] and reducing the impact of FAD fishing on juvenile tuna, but there was no agreement on all of them.

Marking and Monitoring of FADs

10. The IWG reiterates the following recommendations from SC14 Draft Summary Report:

512. SC14 reviewed information on analyses of the PNA's fish aggregating device (FAD) tracking program (SC14-MI-WP-09). SC14 expressed strong support for this type of research and its continuation, noting that the PNA FAD tracking program is providing information and insight that is adding substantial value to the scientific understanding of WCPO fisheries. However, SC14 noted the ongoing practice of fleets not providing full data (estimates indicate that 60–70% of buoy transmissions are not forwarded to the PNA via practices such as geo-fencing) which substantially undermines the scientific value of the information and prevents the SC from being able to provide comprehensive advice to the Commission on FAD dynamics, economics and management. SC14 also expressed concern about the estimated high rate (5%) of beaching events in tracked FADs, with the vast majority of these being in PNA countries, together with the estimated high rate of 'lost' FADs (up to 27%).

513. SC14 recommends that WCPFC15 note the importance of FAD marking and monitoring programs to better identify and follow individual FADs. To address the marine pollution issue, reduce the risk to coastal communities, reefs, and fish stocks SC14 recommends the use of biodegradable FADs, non-entangling, non-entrapping, and environmentally-friendly FAD designs, better measures for FAD control and retrieval, and fewer FAD deployments. SC14 also recommends that the Secretariat ensure this working paper is made available to inform the deliberations of the FAD Management IWG meeting to be held in October 2018 and that WCPFC15 take note of the concerns expressed above and support appropriate measures.

Proposed Minimum Guidelines

Based on existing guidelines and best practice:

- a) **The surface structure of the FAD shall not be covered or only covered with material implying minimum risk of entangling by-catch species.**
- b) **The sub-surface components shall be exclusively composed of non-entangling material (e.g. ropes or canvas).**
- c) **When designing FADs the use of biodegradable materials should be prioritised.**

3. Welcome and opening

1. The Chair, Mr Naiten Bradley Phillip Jr, called the meeting to order at 9.00 am. After welcoming participants to the Third FADMgmtOptions-IWG meeting, he asked Mr Poasi Ngaluage [Tonga] to offer a prayer.
2. The Chair then detailed how the meeting would proceed and reviewed Rev 1 of the Provisional Agenda and Indicative Schedule (FADMO-IWG3-WINF-02 Rev. 1); there being no objections agenda was adopted and is found at Attachment A.
3. The following members, cooperating non-members and participating territories (CCMs) attended FADMO-IWG3: Australia, China, Cook Islands, European Union, Federated States of Micronesia (FSM), Fiji, Indonesia, Japan, Kiribati, Republic of Korea, Republic of the Marshall Islands (RMI), Nauru, New Zealand, Palau, Papua New Guinea (PNG), Philippines, Solomon Islands, Chinese Taipei, Tonga, Tuvalu, United States of America (USA), Vanuatu, plus the Participating Territories of American Samoa, and French Polynesia and the Cooperating Non-member Thailand.
4. Intergovernmental organisations representing the Food and Agriculture Organisation of the United Nations (FAO), Inter-American Tropical Tuna Commission (IATTC), Pacific Islands Forum Fisheries Agency (FFA), the Parties to the Nauru Agreement (PNA) Office, and the Pacific Community (SPC) attended the meeting
5. Observers representing Birdlife International, International Seafood Sustainability Foundation (ISSF), PEW Charitable Trusts, and World Wildlife Fund (WWF) also attended.
6. A list of FADMO-IWG-03 meeting participants is provided as Attachment B.
7. The Secretariat announced the meeting arrangements and detailed the breakout and reporting process. It was explained that the breakout groups responses were not limited to the discussion points provided. The suggested discussion points are found at Attachment C.

4. Review Terms of Reference and Intercessional activities

8. The chair presented the Terms of Reference for the workshop as detailed in the Chair's working paper FADMO-IWG3-WP-01 and reviewed the activities to date culminating in this the 3rd FAD MO IWG meeting.

5. FAD Construction – Biodegradable and Non-Entangling

9. *WCPFC CMM 2017-01 para 22. The Commission at its 2018 annual session, based on specific guidelines defined by the FAD Management Options Intersessional Working Group and advice from SC14 and TCC14 shall consider the adoption of measures on the implementation of non-entangling and/or biodegradable material on FADs.*
10. SPC-OFP set the scene by presenting the SC14 paper EB-IP-01, Evaluation of dFAD construction materials in the WCPO; this presentation showed a breakdown of FAD materials and construction design over time and also by flag. There followed extensive group discussion in breakout groups and the following outcomes were shared in Plenary:
11. Durability of natural materials is an important consideration, and the use of more 'reusable' materials should be promoted given that this will reduce the occurrence of marine debris and lessen demand on source materials. This assumes that such materials will work operationally.
12. Where non-biodegradable FADs are in operation there should be a procedure in place to allow their retrieval, this would require more transparency and visibility of FADs, which leads to other topics of concern including marking and tracking of FADs. Clearly retrievability is linked to the lifespan of the FAD, and different FAD components may have varying lifespans. There was a suggestion that FADs might be sold to other users rather than being 'discarded'.
13. The initial focus should be on 'appendages' noting the acceptability of bundling nets to reduce or eliminate entangling risk and potential damage on beaching.
14. Noting differences in the construction of FADs any guidance language should be clear to facilitate understanding and compliance by industry.
15. Different operators have differing FAD construction/designs, and it was thought that industry would need some time to implement changes. Reference was made to the *ISSF Guide for Non-Entangling FADs* diagram included below in recommendation 6. The group recognized the need for a phase in time - towards 100% ecofriendly. The first step would be to adopt a 'less entangling' option, then non-entangling and finally biodegradable FADs.

16. There is a need for further discussion regarding compliance vs commercial flexibility to allow for innovation.
17. A prescriptive measure provides greater compliance and conservation. Guidelines and specific guidance on component design and material should be clear to ensure that there is a full understanding of what is and what is not considered entangling. However, guidelines shouldn't be too prescriptive, rather it would be best to set objectives for designs and materials and provide guidance on how those objectives may be achieved.
18. Furthermore, it was suggested that incentives should be provided to encourage industry to move more quickly to ecofriendly FAD construction.
19. Multi-zone issues were considered and it was recognized that drifting FAD entry and exit should be monitored/reported/identified.
20. There was general agreement on the proposed minimum guidelines for non-entangling and biodegradable FAD construction, noting that these are applied and adopted elsewhere.
21. There may need to develop criteria for biodegradable materials with the objective of reducing impact on the marine environment e.g. consider the potential breakdown products.
22. Rather than nominate specific products for FAD construction, it may be more useful to exclude undesirable materials/products.
23. Plastics were identified as particularly undesirable. Impacts on environment have been studied over a period of time, and it was thought that a goal should be the removal of all plastics in FAD construction, moving towards utilization of alternative materials e.g. hemp rope.
24. Petroleum products are utilized currently; these do not degrade fast and they degrade into micro pollutants. There should be a move away from artificial materials towards natural products.
25. It should be possible to audit whether materials actually used in FAD construction are biodegradable. This may be possible at the point of manufacture.
26. It is recognized that although there is a goal for every FAD component to be biodegradable, at present it is difficult to make the flotation and the associated tracking buoys non-biodegradable

27. Metal e.g. steel ballast, whilst considered a potential risk if beaching occurs was not considered to be a major concern regarding its impact as a material per-se in the marine environment.

Lifespan of FADs and regulatory lead in time

28. The FADs lifetime will be affected by numerous factors including location and local environmental conditions, local materials used in construction, etc.

29. The meeting was informed that FADs operational lifetime is 3-6 months.

30. With the use of 100% biodegradable material in FADs it was recommended that the goal should be for a 1 year life-span, this would be for the entire FAD, rather than its components.

31. Whilst the FAD should continue to operate up to the point of disintegration, it is recognized that FADs with a longer life expectancy increases the risk of beaching.

32. Although it is possible to give approximations, more research/information is needed to agree a definitive lead in time. Non-entangling guidelines can be implemented whilst parallel research is underway on biodegradable FADs. It is noted that some states and fishermen are already using biodegradable materials in FAD construction.

33. There should be incentives to encourage industry to adopt guidelines as soon as possible.

34. Replacement of existing FADs by biodegradable FADs could be phased in as existing FADs reach the end of their life-span.

35. One group proposed a 3 to 5-year phase in period with multiple benchmarks; with a shorter phase in for non-entangling FADs of 2 years.

36. Consideration is given to a phased approach to clarify and consider state regulatory requirements and how such regulation may support a move to biodegradable FADs.

37. The group queried where different FAD construction policies are adopted in the different RFMOs, what are the ramifications when FADs drift between the RFMO areas of competence?

38. The meeting recalled the existence of guidelines in other RFMOs and from NGOs etc., and noted the practicality of WCPFC guidelines being compatible for example with those of IATTC.

39. WCPFC should have dialogue with other tRFMOs noting that there are existing links, e.g. the Kobe process.

40. There are potential legal/compliance/marketing/tracking issues, which again may be addressed or avoided via increased cooperation between RFMOs.
41. It was reported that IATTC has more stringent guidance for non-entangling FAD construction.
42. Participants wanted a better understanding of industry impacts, and identified challenges for industry implementation include: fishing efficiency, material availability, implementation costs and changes in industry practices.
43. There is some uncertainty around the long-term supply/availability of natural biodegradable materials proposed for various FAD components.
44. There should be a review of business models/supply chains etc. and how proposed guidelines might impact SIDS.
45. Following a comment on selling FADs there was broad plenary discussion on the multijurisdictional implications around FAD retrieval in relation to reducing marine debris and impacts on the environment. This discussion noted the need to properly review existing work e.g. PNA FAD tracking.

Due to changes in flight schedules and concerns regarding overbooking a substantial proportion of the group left early and the remaining participants preferred to continue the meeting in plenary.

6. FAD Limit Numbers

46. *WCPFC CMM 2017-01 para 23. 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.*
47. *WCPFC CMM 2017-01 para 24. Commission at its 2018 annual session, based on consideration in the FAD Management Options Intersessional Working Group, shall review whether the number of FADs deployed as set out in paragraph 23 is appropriate.*
48. SPC-OFP presented “Estimation of the number of FADs active and FAD deployments per vessel in the WCPO” (SC14-MI-WP-10).

49. This paper attempts to estimate the number of deployments and active FADs per vessel over the last 7 years. Estimates were derived using two different approaches. Firstly, based on fishery data for 2011–2017, the number of deployments varied from 0 to 500 per vessel but few vessels deployed/redeployed more than 350 buoys per year. This corresponds to a total estimated number of deployments between 21,000 and 51,000 per year in the WCPO for the 2011–2014, but the numbers drop thereafter, likely due to delays in receiving observer data for recent years. The second approach combined fishery data and the PNA FAD tracking data and therefore only covered 2016 and 2017 with precise estimates only possible for some vessels. The estimated number of deployments per vessel varied between 1 and 550 in 2016 and 1 and 999 in 2017 and the estimated number of active FADs per vessel varied between 1 and 454 in 2016 and 1 and 955 in 2017. At the scale of the WCPO, this corresponds to 30,700–56,900 deployments in 2016 and 44,700–64,900 in 2017; and 26,200–37,300 active FADs in 2016 and 38,000–48,200 in 2017. The ratio between number of deployments/redeployments per year and number of active FADs per vessel and per year average at 1.48. Results from both methods correspond to estimates per vessel per year, and given this deployment/active ratio and an average active time of a FAD of 6 months found in the FAD tracking data, it is clear that at any given time, few/no vessels would have more than 350 active FADs in the water.
50. Following a brief discussion, the meeting agreed that it was unable to provide a precise answer to the question posed by WCPFC14, noting that the number would dependent upon the Commissions objectives for managing FAD numbers. The discussion is reflected in the Meetings’ recommendation #9. It was noted that SPC-OFP would be better placed to conduct appropriate research as directed by the Commission once management objectives are specified.

7. Marking and Monitoring of FADs

51. SPC-OFP presented a “Report on analyses of the 2016/2018 PNA FAD tracking programme” (SC14-MI-WP-09).
52. This paper presents analyses of the PNA’s FAD tracking programme including: a description of the data processing required; estimated data submission rates to the PNA; a description of the spatio-temporal distribution of buoy deployments; FAD densities; FAD connectivity; and an analysis of the fate of FADs including a focus on FAD beaching. Using two methods, matching buoy tracks and observer or logsheet data, it was estimated that ~60–70% of buoy transmissions collected by fishing companies are not forwarded to the PNA. Some of the data received by PNA are also modified by fishing companies prior to submission (“geo-fencing”). The cleaned dataset used consisted of 14.8 million transmissions from 26,466 buoys and covered the period from 1st January 2016 to 18th March 2018. This corresponds to an estimated total of 36,831 deployments (from 193 vessels including), with main deployments areas in Kiribati South of the Gilberts Islands

and East of the Phoenix Islands, Nauru, East of PNG. The number of transmissions from buoys almost doubled in 2017 and the number of individual buoys active in the available data was 10,915 in 2016 and 18,405 in 2017. Although influenced by the issues arising due to geo-fencing, the spatial distribution of buoy densities was investigated, with higher densities in Kiribati South of the Gilbert Islands and around the Phoenix Islands, Tuvalu, PNG and the Solomon Islands. Finally, at least 5% of the buoys ended up beached, with the connected FAD potentially damaging sensitive ecosystems such as coral reefs; and at least 26% of the buoys in our dataset could be considered lost, likely leading to marine pollution

53. The meeting noted that SC14 made recommendations in relation to the Marking and Monitoring of FADs and the IWG reiterated them under recommendation #10.

8. FAD Research

Research

54. The FAD Research Plan was not reviewed at SC14. The four outstanding projects were presented to the FAD MO IWG meeting. There was no substantive plenary discussion.

Project title	SC Rank	Year	Year	Year
Project 86 FAD designs to reduce unwanted interactions with Species of Special Interest (SSIs; sharks, turtles)	High/1			
Project 87. FAD designs to reduce unwanted catches of juvenile bigeye tuna & yellowfin tuna	High/2			
Project 89. Fleet behaviour Data limited at present time	High/3			
Project 88. Acoustic FAD analyses	Medium		~120,000	~72,000

55. It was suggested that there was a need to research the incidence of FADs drifting between areas of competence.
56. The meeting was advised that there is existing research on biodegradable FADs in other regions/oceans, with similar objectives, i.e. materials, design, lifecycle analysis, deployment strategies, FAD performance in relation to both biodegradable and non-entangling FADs and economic implications. Hence, in the future there will be a fuller body of information to support Commission decisions.
57. Research should encompass economic and ecological aspects of transition towards biodegradable FADs.

58. There should be impact studies on the effects of utilizing [large] volumes of biodegradable materials.
59. It is suggested that research already conducted by other RFMOs e.g. on FAD types, may be useful.
60. More information is needed on the potential biodegradable materials that may be utilized in FAD construction.
61. The good research already conducted by SPC was recognized by the meeting.
62. Research priorities should be on appropriate biodegradable and non-entangling materials.
63. Research into FAD design that promotes eco-friendly aspects without losing fishing efficiency was identified as potentially useful.
64. Indonesia, Philippines and Solomon Islands were noted as states which have made good progress in the utilisation of eco-friendly FADs albeit that some may be anchored rather than drifting.
65. One breakout group in the morning highlighted 6 specific areas of FAD research on:
 - I. the origin of current FAD materials vs all natural FADs
 - II. the Productivity of different FAD types in WCPFC
 - III. abandonment and beaching of FADs to include the rate of occurrence
 - IV. economic research in relation to FAD density and catch rates
 - V. lifespans of natural FADs
 - VI. FADs as navigational hazards

9. Other Matters

82. Japan raised two issues. 1) Does a FAD in the water constitute fishing? 2) The current definition of a FAD. In their opinion, a chop stick in water does not constitute fishing although it is defined as FAD in accordance with paragraph 3 of CMM2009-02. Reiterating that it doesn't dispute the definition of FADs, Japan considered that was useful question for consideration of practical implementation of the definition.

83. Korea reiterated earlier comments around the issue, if for example a small item [plastic bag] was found in the set, it would be considered a FAD set. Hence Korea would like to revisit the definition of FADs, and perhaps reviewing definitions applied by other RFMOs.

84. Following a brief discussion in plenary, where opposing views were expressed, the Chair did not devote further time for this discussion at the current FAD meeting.

10. Close

85. The Chair officially declared the plenary meeting of the 3rd FADMgmtOptions-IWG closed at 5.30 pm on 3rd October 2018.

Attachment A - Adopted Agenda



3rd MEETING OF THE FAD MANAGEMENT OPTIONS INTERSESSIONAL WORKING GROUP

Majuro, Republic of the Marshall Islands
3 October 2018

PROVISIONAL AGENDA AND INDICATIVE SCHEDULE

FADMO-IWG3 WINF-02

Timing shifted to allow for local transport/logistic plus lunch presentation GGGI

Rev

1 (30 Sep 2018)

TIME	AGENDA ITEM 1. Welcome and Opening
09:00	1.1 Opening
	1.2 Adoption of agenda
	1.3 Meeting arrangements
09:15	AGENDA ITEM 2. Review of Activities
	2.1 Review Terms of Reference and intercessional activities
09:20	AGENDA ITEM 3. FAD Construction – Biodegradable and Non-Entangling
	3.1 Evaluation of dFAD construction materials in the WCPO
	3.2 Proposed Guidelines
	3.3 Questions and Answers
09:50	3.4 Breakout groups
10:30	COFFEE BREAK (10:30-10:50)
10:50	3.5 Breakout group reports and plenary discussion
11:25	3.6 Recommendations
11:45	AGENDA ITEM 4. FAD Numbers
	4.1 Estimates of the number of FADs active and FAD deployments per vessel in the WCPO
	4.2 Questions and Answers
12:15	4.3 Breakout groups
12:45	LUNCH (12:45 – 14:00) Presentation by Ingrid Giskes Chair GGGI
14:00	4.4 Breakout group reports and plenary discussion
14:30	4.5 Recommendations
14:50	AGENDA ITEM 5. Marking and Monitoring of FADs
	5.1 Report on analyses of the 2016/2018 PNA FAD tracking programme
	5.2 Questions and Answers
15:20	5.2 Breakout groups
16:05	5.3 Breakout group reports and plenary discussion

16:35	5.4 Recommendations
16:55	COFFEE BREAK (16:55-17:15)
	AGENDA ITEM 6. FAD Research Plan
17:15	6.1 Review FAD Research Plan
17:45	AGENDA ITEM 7. Other Matters
18:00	AGENDA ITEM 8. CLOSE

Attachment B – Participants list



Meeting Attendees

Chair of Meeting

Bradley Phillip

Chief, Research Division
National Oceanic Resource
Management Authority (NORMA)
PO Box PS 122 Kolonia
Pohnpei, FM 96941 Federated States of
Micronesia
(691) 320-2700

Member - Australia

Mat Kertesz

Fisheries - Multilateral and Migratory
Stocks
Department of Agriculture and Water
Resources
GPO Box 858 Canberra ACT 2601
Australia

Sophie Fisher

Foreign Compliance Policy
Australian Fisheries Management
Authority
PO Box 7051
Canberra BC, ACT Australia 2601

Member - China

Liu Xiaobing

Visiting Professor
Shanghai Ocean University

Li Yan

Deputy Director
China Overseas Fisheries Association

Xiaojie Dai

Professor
Shanghai Ocean University
999 Hucheng Huan Road
201306, Shanghai, China
86-15692165351

Xu Liuxiong

Professor
Shanghai Ocean University

Member - Cook Islands

Andrew Jones

Senior Fisheries Officer, Offshore
Fisheries
Ministry of Marine Resources
PO Box 85
Rarotonga Cook Islands
+682 28721, extn 831

Latishia Maui

Observer Coordinator
Ministry of Marine Resources
Betela
Arorangi Rarotonga Cook Islands
0068279422

Member - European Union

Orlando Fachada

Senior Expert
European Commission
Rue Joseph II, 03/45
1040 Bruxelles - Belgium
+3222990857

Stamatis Varsamos

International Relations/Scientific Officer
European Commission

Juan Ignacio de Leiva Moreno

Fisheries Attache
Delegation of the European Union for
the Pacific

Member - Federated States of Micronesia

Mathew Chigiyal

Deputy Director
National Oceanic Resource
Management Authority
691-320-2700

Jonathan David Buckner

Assistant Attorney General
Department of Justice-Federated States
of Micronesia
PO Box PS-105 Palikir
Pohnpei, FM 96941
6913202608

Justino Helgen

Acting Chief of Compliance
National Oceanic Resources
Management Authority
PO Box PS 122
Kolonja Pohnpei 96941
320-2700

Member - Fiji

Leba Dranivesi

Fisheries Officer
Ministry of Fisheries
Motibhai Building
Walu Bay, Suva Fiji
+679 3225 700

Member - Indonesia

Fayakun Satria

Head of Research Institute of Marine
Fisheries
Ministry of Marine Affairs and Fisheries
Komplek Raiser Ikan Hias, Jl. Raya
Bogor KM.47
Nanggewer Mekar Cibinong Indonesia
+62-21-6602044 / +62-21-6605912

Sofi Chullatus Sofia

Head of Section for Utilization of Fish
Resources Management in IEEZ and
High Seas
Ministry of Marine Affairs and Fisheries
Jl. Medan Merdeka Timur No. 16
Jakarta Pusat, Jakarta Indonesia
+62213453008

Member - Japan

Akihiko Yatsuzuka

Advisor
Overseas Fishery Cooperation
Foundation of Japan (OFCF)
3-2-2 Toranomom, Minato-ku, Tokyo

Wataru Tanoue

International Affairs Division
Fisheries Agency of Japan
1-2-1 Kasumigaseki
Chiyoda-ku, Tokyo Japan 100-8907

Hikaru Hamaguchi

Advisor
Overseas Fishery Cooperation
Foundation of Japan (OFCF)
3-2-2 Toranomom, Minato-ku, Tokyo

Takahiro Fujiwara

International Affairs Division
Fisheries Agency of Japan
1-2-1 Kasumigaseki
Chiyoda-ku, Tokyo Japan 100-8907

Teruo Kitade

Fisheries Management Division
Fisheries Agency of Japan
1-2-1 Kasumigaseki, Chiyoda-ku, Tokyo

Takumi Fukuda

Resource Management Department
Fisheries Agency of Japan
1-2-1 Kasumigaseki Chiyoda-ku, Tokyo
100-8907

Kazushige Hazama

Chief
National Offshore Tuna Fisheries
Association of Japan
1-3-1, Uchikanda, Chiyoda-Ku
Tokyo 101-0047 Japan

Satoru Shimizu

Secretariat
National Ocean Tuna Fishery
Association
Co-op Bldg 7F, 1-1-12 Uchikanda,
Chiyoda-ku
Tokyo, Japan, 101-0047

Akihito Fukuyama

Executive Secretary
Japan Far Seas Purse Seine Fishing
Association
14-10, Ginza 1Chome, Chuo-ku
Tokyo 104-0061, Japan
+81-3-3564-2315

Naohisa Kanda

Consultant
Japan NUS Co., Ltd.
Environmental Management Unit
Nishi-Shinjuku Prime Square Bldg 5F 7-
5-25, Nishi-Shinjuku, Shinjuku-ku, Tokyo
160-0023 Japan

Member - Kiribati

Mbwenea Teioki

Principal Compliance Officer
Ministry of Fisheries and Marine
Resources Development
Licensing & Compliance Division
Bairiki, Tarawa Kiribati

Uati Tirikai

Senior Compliance Officer
Ministry of Fisheries and Marine
Resources Development
Licensing & Compliance Division
Bairiki, Tarawa Kiribati.

Member - Nauru

Ace Capelle

Senior Observer Coordinator
Nauru Fisheries and Marine Resources
Authority
Denig District
Republic of Nauru
+674 557 3911

Camalus Reiyeysi

Senior Oceanic Officer
Nauru Fisheries & Marine Resource
Authority
Nauru Fisheries Main Office
Anibare District Republic of Nauru
674 5573733

Murin Hazlitt Jeremiah

Oceanic Fisheries Manager
Nauru Fisheries & Marine Resource
Authority
Fisheries Main Office
Anibare District Republic of Nauru
674 5573137

Jasmina Giouba

Policy & Legal Manager
Nauru Fisheries and Marine Resources
Authority
Main Office
Anibare District Republic of Nauru
+674 5573733

Member - New Zealand

Richard Martin

International Compliance Adviser
Ministry for Primary Industries
Pastoral House, 25 The Terrace, 6011,
Wellington
PO Box 2526, 6140, Wellington New
Zealand
64-4-819 4210

Megan Linwood

Senior Policy Analyst
Ministry for Primary Industries
Pastoral House, 25 The Terrace, 6011,
Wellington
PO Box 2526, 6140, Wellington New
Zealand
+64 4 830 1532

Andy Smith

Operations Manager
Talleys Group Ltd
Akersten St
Maitai Wharf, Port Nelson New Zealand
+6421337756

Member - Palau

Kathleen Sisor

Fisheries Licensing/Revenue Officer II
Ministry of Natural Resources
Environment and Tourism
P.O. Box 100, Malakal Road
Koror, Rep. of Palau 96940
+6804884934

Member - Papua New Guinea

Thomas Usu

Tuna Fishery Manager
PNG National Fisheries Authority
Level 11, Deloitte Tower
Douglas Street PO Box 2016 Port
Moresby, N.C.D Papua New Guinea
+675 3090444

Martina Ragagalo

Compliance Manager
PNG National Fisheries Authority
Level 11, Deloitte Tower
Douglas Street PO Box 2016 Port
Moresby, N.C.D Papua New Guinea
+675 3090444

Herman Kisokau

iFIMS Officer
PNG National Fisheries Authority
Level 11, Deloitte Tower
Douglas Street PO Box 2016 Port
Moresby, N.C.D Papua New Guinea
+675 3090444

Joseph Kendou

Senior Compliance Officer
PNG National Fisheries Authority
Level 11, Deloitte Tower
Douglas Street PO Box 2016 Port
Moresby, N.C.D Papua New Guinea
+675 3090444

Laurelle Pentanu

Foreign Service Officer
PNG Department of Foreign Affairs
PO Box 422
Vision City, NCD PNG
3014163

Arnel Muallil Gonato

Managing Director
RD Fishing PNG Ltd.
Portion 1352, RD Wharf, Vidar North
Coast Road
PO Box 1254 Madang, Papua New
Guinea
+67571034521

Sisenio Pagalan Jr

IBO
Trans-Pacific Journey Fishing
Corporation
1094-A North Bay Boulevard
+6322828812

Member - Philippines

Benjamin Felipe S. Tabios Jr.

Attorney V, Office for Special Concerns
Bureau of Fisheries and Aquatic
Resources Department of Agriculture
3rd Floor Philippine Coconut Authority
Building, Quezon Memorial Circle,
Diliman, Quezon City, Philippines
+6324548457

Rafael Vallente Ramiscal

Chief, Capture Fisheries Division
Bureau of Fisheries and Aquatic
Resources, Philippines
PCA Building, Elliptical Road
Diliman, Quezon City Philippines
+6329294296

Sammy A. Malvas

Assistant Director for Administrative
Service
Bureau Of Fisheries and Aquatic
Resources
PCA Bldg. Elliptical Road, Diliman
Quezon City Philippines
+639178627622

Elaine G. Garvilles

Aquaculturist/Asst National Tuna
Coordinator
Bureau of Fisheries & Aquatic
Resources
3F PCA Building Elliptical Road Diliman
Quezon City
+6324559493

Marlo Baito Demo-os

Aquaculturist II
Bureau Of Fisheries and Aquatic
Resources
MCS Station and Fishing Tech
Laboratory
PFDA Fishport Complex, Navotas City
Philippines

Asis Perez

Adviser
South Cotabato Purseseiners
Association
Mezzanine Floor, Market 3 Hall
General Santos City Fishport Complex
Tambler, General Santos City
Philippines
+639178419320

Member - Republic of Korea

Seunglyong Kim

Deputy Director
Ministry of Oceans and Fisheries

Bongjun Choi

Assistant Manager
Korea Overseas Fisheries Association

Ho Woon Kim

Executive Director
Silla Co., Ltd

Ju Kwang Ryu

Assistant Manager
Silla Co., Ltd

Jaehoon Joseph Choi

Manager
Dongwon Industries Co., Ltd
68 Mabang-ro, Seocho-gu
Seoul, Korea (06775)
82-2-589-3108

Jay (Jae Hwa) Lee

Assistant Manager
Dongwon Industries Co., Ltd.

Kyung Yung Lee

Deputy General Manager
Sajo Industries Co., Ltd.

Seung-hyun, Choo

Assistant Manager
Sajo Industries Co.,Ltd
821041417092

Young Su Kim

In-house Counsel
Sajo Group

Jang Geun Ho

Inspector
Fisheries Monitoring Center
82-10-6769-7973

Member - Republic of Marshall Islands

Glen Joseph

Director
Marshall Islands Marine Resources
Authority (MIMRA)
PO Box 860
Majuro, MH 96960
+692 625-8262

Samuel K. Lanwi, Jr.

Deputy Director
Marshall Islands Marine Resources
Authority

Francisco Blaha

Offshore Fisheries Advisor
Marshall Islands Marine Resources
Authority
Oceanic Division
+6924567122

Berry Muller

Oceanic Division Chief
Marshall Islands Marine Resources
Authority
PO Box 860
Majuro, MH 96960
6926258262

Laurence Edwards, II

Legal Advisor
Marshall Islands Marine Resources
Authority
PO Box 1135
Rairok Village
6926258262

Candice M. Guavis

Fisheries Officer
Marshall Islands Marine Resources
Authority
PO Box 860
Majuro, MH 96960
6926258262

Marcella Tarkwon

Compliance Officer
Marshall Islands Marine Resources
Authority
P O Box 860
Majuro, MH 96960
(692)625-8262/5632

Eugene Gold

MCS officer
Marshall Islands Marine Resources
Authority
6255632

Kiko Andrike

Executive Secretary/Administrative
Assistant
Marshall Islands Marine Resources
Authority
PO Box 860
Majuro, Marshall Islands 96960
(692)625-8262/5632 -Work (692)455-
3474

Lily Muller

Senior Fisheries Officer
Marshall Islands Marine Resources
Authority
PO Box 860
Delap, Majuro, Marshall Islands MH
96960
+6924561403

Melvin Silk

Assistant MCS Officer
Marshall Islands Marine Resources
Authority

Yolanda Elanzo

PROP Project Coordinator
Marshall Islands Marine Resources
Authority
PO Box 3683
4554656

Chengxu Li

Fleet Cooperator
Pan Pacific Foods
PO Box 1289
Majuro, MH 96960
6924555558

Eric Koo

Special Assistant to the Chairman
Koo's Fishing Company
PO Box 321
MH 96960, Marshall Islands
6924561999

Joseph Kramer

Data Specialist
Pacific International Inc
6253560

Orlando Paul

Deputy Manager
Koo's Fishing Company LTD
PO Box 321
Majuro MH 96960
(692)625-5310

Wanjun Yang(Young)

General Manager
Pan Pacific Foods
PO Box 1289
Majuro, MH 96960
6924555558

Member - Solomon Islands

Francis Tofuakalo

Deputy Director Offshore Fisheries
Ministry of Fisheries and Marine
Resources
PO Box G2
Kukum Highway, Honiara Solomon
Islands
(677) 39143

Derick Suimae

Chief Fisheries Officer - Compliance
Ministry of Fisheries and Marine
Resources
PO Box G2
Honiara Solomon Islands

Charles Edward Tobasala

Chief Fisheries Officer - Compliance
Ministry of Fisheries and Marine
Resources
PO Box G2
Honiara Solomon Islands
(677)39143/7402404

Maebiru Marsh

MCS
Ministry of Fisheries and Marine
Resources
PO Box G2
Honiara Solomon Islands
(+677) 39143

Amanda Hamilton

Senior Manager - Fisheries Policy &
Regulation
Tri Marine International

Angelina Tan

Assistant Manager - Fisheries Policy
and Sustainability
Tri Marine International Pte Ltd

Transform Aqorau

CEO
iTuna Intel
PO Box 151
Munda Solomon Islands
677-8625411

Member - Chinese Taipei

Joseph Chia-Chi Fu

Director
Overseas Fisheries Development
Council

Annie Wen-Ying Wang

Section Chief
Fisheries Agency, Council of Agriculture

Nathalie Jo-Tzu Chen

Inspector/ Third Secretary
Fisheries Agency, Council of Agriculture

Joy Hsiang-Yi Yu

Secretary
Fisheries Agency, Council of Agriculture

Harry Chen

Senior Specialized Assistant
South Seas Tuna Corporation
F.C.F Fishery Co., Ltd.

Tzu-Yu Sun

Specialized assistant
F.C.F. Fishery Co., Ltd

Shirley Shih-Ning Liu

Secretary
Overseas Fisheries Development
Council

Ting Chen

Officer
Coast Guard Administration

Yun-Hu Yeh

Associate Professor
Dept. of Maritime Police, Central Police
University

Member - Tonga

Tuikolongahau Halafihi
Chief Executive Officer
Ministry of Fisheries
Tonga Ministry of Fisheries
Nuku'alofa Tonga
00 676 21399

Member - Tuvalu

Samasoni A Finikaso
Director of Fisheries
Tuvalu Fisheries
Department of Fisheries
Teone, Funafuti, Tuvalu
(688) 20344

Member - United States of America

Valerie Post
Fishery Policy Analyst
NOAA Fisheries
1 808 725 5034

Tom Graham
Chief, International Fisheries Division
NOAA Fisheries
+1 808 725 5032

Alexa Cole
Deputy Chief Enforcement Section
NOAA Office of General Counsel
+1 301 427 8286

Alex Kahl
Natural Resource Specialist
NOAA Fisheries
+1 808-725-5031

David O'Brien
Natural Resources Policy Analyst
NOAA Fisheries
1 808 725 5038

Emily Crigler
Fishery Policy Analyst
NOAA Fisheries
+1 808-725-5036

Michael Brakke
Foreign Affairs Officer
U.S. Department of State

Member - Vanuatu

Tony Taleo
Principal Data Officer
Vanuatu Fisheries Department
PMB 9045
Port Vila Vanuatu

Participating Territory - American Samoa

Domingo Ochavillo, PhD

Chief Fisheries Biologist
American Samoa Department of Marine
and Wildlife Resources
PO Box 3730, Pago Pago, American
Samoa
1-684-633-4456

Participating Territory - French Polynesia

Marie Soehnlen

Fisheries Officer
Direction des ressources marines et
minières (Marine Resources and Mining
Department)
BP 20 - 98713 Papeete, Tahiti
Polynésie Française
+ 689 40 50 25 14

Observer - Birdlife International

Karen Baird

Pacific Regional Coordinator BirdLife
International Marine Programme
BirdLife International
400 Leigh Road
RD 5
094226868

Observer - Food and Agriculture Organisation of the United Nations (FAO)

Shelley Clarke

Technical Coordinator - Shark and
Bycatch Common Oceans (ABNJ) Tuna
Project
FAO
Viale delle Terme di Caracalla 00153
Rome, Italy
+39 06 57051

Observer - Inter-American Tropical Tuna Commission (IATTC)

Ricardo Belmontes Acosta

Fisheries Policy Officer
IATTC
8901 La Jolla Shores Drive
La Jolla CA 92037
+85 8546 7158

Julio Guevara

Delegate to IATTC
IATTC
+507 6400 3849

Jimmy Villavicencio Navia

Delegate to IATTC
IATTC
Edificio Business
Torre B, 7mo Piso. OFIC 704 Avenidas
M2 y M3 (Diagonal a Torres Oro Verde
– Zona del Mall del Pacifico)
05-262 8585 / 05-262 7059 / 05-262
7088

Observer - International Seafood Sustainability Foundation (ISSF)

Claire van der Geest

Policy Advisor
ISSF
PO Box 3141 Port Adelaide SA 5015
+61403707105

Observer - Pacific Islands Forum Fisheries Agency (FFA)

Matthew Hooper

Deputy Director General
Pacific Islands Forum Fisheries Agency
1 FFA Road, Honiara
Solomon Islands

Manu Tupou-Roosen

Legal Counsel
Pacific Islands Forum Fisheries Agency
1 FFA Road, Honiara
Solomon Islands

Pamela Maru

Fisheries Management Adviser
Pacific Islands Forum Fisheries Agency
1 FFA Road
West Kola'a Ridge PO Box 629 Honiara
Solomon Islands e: info@ffa.int
+677 21124

Ramesh Chand

Manager Vessel Monitoring System
Pacific Islands Forum Fisheries Agency
1 FFA Road, Honiara, Solomon Islands
+ 677 21124 ext 213

Allan Rahari

Surveillance Operations Officer
Pacific Islands Forum Fisheries Agency
1 FFA Road
+677 21124

Tion Nabau Tion

Legal Adviser
Pacific Islands Forum Fisheries Agency
Honiara
Solomon

Viv Fernandes

Compliance Policy Adviser
Pacific Islands Forum Fisheries Agency
1 FFA Road, Honiara
Solomon Islands

Observer - Parties to the Nauru Agreement (PNA)

Wez Norris

Adviser
Parties to the Nauru Agreement Office
24 Hardwood Ct
411885566

Sangaalofa Clark

Policy Advisor
Parties to the Nauru Agreement

Patricia Jack

Vessel Day Scheme Manager
Parties to the Nauru Agreement Office
PO Box 3992
+6924567896

Penihulo Lopati

VDS/ VMS Officer
Parties to the Nauru Agreement Office

Observer - Pew Charitable Trust

Dave Gershman

Officer, Global Tuna Conservation
Pew Charitable Trusts
901 E Street NW
Washington, DC 20004 USA
12025406406

Ingrid Virginia Petronella Giskes

Chair of the Global Ghost Gear Initiative
Pew Charitable Trusts
Unit 21, 17-19 Old Barrenjoey Road,
2107, NSW, Avalon
+61 (0) 450 22 91 92

Observer - Secretariat of the Pacific Community (SPC)

Graham Pilling

Principal Fisheries Scientist (SAM)
SPC, OFP
B.P. D5
98848 Noumea Cedex New Caledonia
+687 262000

Observer - World Wide Fund for Nature (WWF)

Bubba Cook

Western and Central Pacific Tuna
Programme Manager
World Wide Fund for Nature
PO Box 6237, Marion Square
+64 (0)27 833 0537

Secretariat

Rhea Moss-Christian

WCPFC Chair
Western and Central Pacific Fisheries
Commission
Kaselehlie Street, PO Box 2356 Kolonia
Pohnpei, FM 96941
(691) 320-1992/1993

Feleti Teo

Executive Director
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

SungKwon Soh

Science Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Aaron Nighswander

Finance & Administration Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Lara Manarangi-Trott

Compliance Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Samuelu Taufao

ICT Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Albert Carlot

Vessel Monitoring System Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993 (ext 120)

Karl staisch

ROP Coordinator
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Tony Beeching

Assistant Manager Science
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

'Ana F. Taholo

Assistant Compliance Manager
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Penelope Ridings

Legal Advisor
Western and Central Pacific Fisheries
Commission
691 3201992

Lucille Martinez

Administrative Officer
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Pohnpei, FM 96941
(691) 320-1992/1993

Arlene Takesy

Executive Assistant
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Kolonia Pohnpei, FM
96941
(691) 320-1992/1993

Samuel Rikin

IT Officer
Western and Central Pacific Fisheries
Commission
Kaselehlie Street
PO Box 2356 Pohnpei, FM 96941
(691) 320-1992/1993

Attachment C – Discussion Starter Points

AGENDA ITEM 3. FAD Construction – Biodegradable and Non-Entangling

1. Assuming agreement on the minimum guidelines – how prescriptive does the group think we should be in terms of specifying construction materials
2. Should we specify the lifetime of biodegradable materials to use in FAD construction. Perhaps develop a ranking of biodegradable materials according to their ‘life-span’.
3. What research has been conducted – what further research is required?

AGENDA ITEM 4. FAD Numbers

1. What Management Objective(s) drive a decision on FAD number limitations?
2. [SPC notes that this influences a decision on the limit, and also the research that may be needed to support the decision on a given limit value].
3. Discuss/define **activity** in relation to FAD numbers as referenced in 2017-01.
There is potential ambiguity in the text in relation to the total number of permitted FADS with activated buoys, e.g.
 -) If FADs are replaced every 6 months [average] does that mean a boat with 350 FADs [maximum] actually deployed 700 FADs with activated buoys in one year?
 -) Should the number of FADs with activated buoys really count the number that are deployed at any given time?
4. What research has been conducted – what further research is required?

AGENDA ITEM 5. Marking and Monitoring of FADs

1. PNA has taken a strong lead in the Marking and Monitoring of FADs
2. Does this group wish to comment on what the PNA has achieved to date, referencing WCPFC13 Para 592.
592. The FADMgmtOptions-IWG has already achieved most of what it was designed to stimulate, with research activities ongoing. 85% of the FAD sets reported in this region take place in the national jurisdictions of FFA members, and trials of a range of FAD management measures are ongoing under the PNA umbrella. In 2017 FFA members wanted to focus on developing the bridging CMMs for the major tuna stocks without distractions. These CCMs advised that when trials and research activities have results to disseminate, they will do so.
3. What research has been conducted – what further research is required?