



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

5th FAD Management Options Intersessional Working Group

EMAIL CORRESPONDENCE
15 October – 15 November 2021

SUMMARY REPORT

WCPFC18-2021-FADMO-IWG5-01

WCPFC FAD Management Options Intersessional Working Group

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

**5th FAD Management Options Intersessional Working Group
(FADMO-IWG-5)**

Email Communication
15 October – 15 November 2021

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 2021-87 dated 6th October 2021.
2. The FADMO-IWG Chair noted that in November 2020, the working group has finalized the draft *Guidelines for non-entangling and biodegradable FADs*, which was forwarded to the Commission. WCPFC17 in December 2020 provided the following recommendation (Paragraph 349, WCPFC17 Summary Report):

349. Noting that the SC16 and TCC16 could not complete the task in paragraph 22 of CMM 2018-01 due to the limited agenda resulting from COVID-19, the Commission tasked SC17 and TCC17 to review the draft guidelines for non-entangling and biodegradable FADs prepared by the FAD Management Options IWG (Attachment K). The FAD Management Options IWG should revisit the draft guidelines based on input from those bodies as well as any additional scientific and technical information on non-entangling and bio-degradable FADs.
3. The Chair emphasized that the main task of the FADMO-IWG is to update the Guidelines for Non-Entangling and Biodegradable (NEBD) FADs taking into consideration discussions at SC17 and TCC17 including other available scientific and technical information on non-entangling and biodegradable FADs and the status of WCPFC Project 110.
4. The Chair further noted that the guidelines for non-entangling and bio-degradable FAD materials are non-binding, however, subject to the Commission decision if these guidelines will be binding or mandatory. He requested participants for their constructive comments/suggestions on the updated draft Guidelines for Non-entangling and Biodegradable FADs (**FADMO-IWG-05-2021-WP-01**).

II. EMAIL COMMUNICATIONS ON THE UPDATED GUIDELINES FOR NON-ENTANGLING AND BIODEGRADABLE FADs

5. The Chair sent the 1st email communication to the working group on 15 October 2021, requesting comments/suggestions on the draft document setting the deadline on 20 October 2021.

6. ISSF gave substantive inputs that were considered and reflected in the following new sections of updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01):
 - a. Areas for future research
 - b. Ways forward for the implementation of biodegradable FADs
 - c. Useful references
7. All comments/suggestions from ISSF, USA and Chinese Taipei were considered and reflected in the 1st revision of the updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01) which was recirculated on 21st October 2021 as part of the 2nd email communication.
8. The Chair also acknowledged that there were inputs from the 1st email communication that were received after the 20th of October 2021 deadline or after the 2nd email communication was circulated; the Chair considered those comments and suggestions in the next email communication.
9. The Chair noted that after the 2nd email communication, there was no general support on USA additional suggested text in paragraph 5: “In addition, if the Commission opts to incorporate the guidelines into a binding measure, the Commission should consider clarifications to the wording”. Japan commented that this was not discussed at TCC or SC. While Chinese Taipei’s understanding is consistent with the Chair, as specified in paragraph 4, that these guidelines should be non-binding as all Commission guidelines are.
10. SPREP commented that entanglement risk also occurs when FADs are abandoned or lost and thus should be covered in these guidelines. Their risk to other marine species especially whales (and sharks) may increase as a result of this progressive disintegration. This is particularly true for netting as it unravels and or becomes detached from the FAD and being constructed of nylon composite which do not biodegrade. This means that they will remain in the marine space indefinitely, so their post use period far extends into the future unless they are retrieved which currently happens rarely around 9%.
11. In the Guidelines for Non-entangling FADs under the raft structure section, USA prefers to retain the original language that starts, “To the extent possible...”, it was their view that it may be difficult to come up with a specific timeline since it is unclear when relevant materials can be made available.
12. While some members of the working group noted that in the previous discussions of SC17 and TCC17, most CCMs were in favor to adopt fully non-entangling FADs but they consider the timing, when to totally ban nettings on FADs should be determined based on the availability of materials in the respective area and other challenges. They also viewed that having the term “to the extent possible” leaves the deadline for transitioning open and there is no incentive for the fleet to move on. In this regard, the following were suggested approach for the guidelines for fully non-entangling FADs: i) define what is a fully non-entangling FADs (e.g., using ISSF definitions) and ii) include a timeline for transitioning in the Conservation Management Measure (CMM).
13. EU also suggested that the Commission considers developing a definition of “biodegradable FAD”, ideally in consultation with other t-RFMOs.

14. The Chair also noted that other suggestions were minor which includes formatting or changes in the placement of paragraphs or texts within the document. He further noted that there was no consensus on the suggested new sections of the updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01) that includes i) areas for future research (Attachment C), ii) ways forward for the implementation of biodegradable FADs (Attachment D), and iii) useful references (Attachment E). The Chair believed that these sections need future consideration and discussion.
15. Japan believed that it is not appropriate to include future research or future implementation schedule in the guidelines. But they welcome discussion on these topics at WCPFC18 or another appropriate forum. Japan also viewed those references are not usually included in a guideline.
16. While Chinese Taipei appreciated the information provided by ISSF and some working group members, they believed that some of the information or statements were new, and they need time to discuss the content that is currently limited. They also noted paragraph 4 in the background section (FADMO-IWG-05-2021-WP-01) that relevant trials have not been completed and believed that these section needs further consideration.
17. After considering further comments, suggestions and inputs received from the working group members (Chinese Taipei, European Union, FFA, Japan, PNA, SPREP, USA) that were reflected in the 2nd revision of the updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01). This revised document (FADMO-IWG-05-2021-WP-01_revision 2) was recirculated together with the draft summary report on 29 October 2021 as part of the 3rd email communication.
18. SPC suggested including the following text: “The FAD-IWG notes that processes to monitor the implementation of non-entangling and/or bio-degradable FAD guidelines will need to be discussed in the near future, to assist in their ongoing improvement” which appears in paragraph 9 (FADMO-IWG-05-2021-WP-01). SPC viewed that there is a need to highlight the fact that currently, the Regional Observer Program GEN-5 form, it is very hard to know which materials are biodegradable or not. Therefore, there is a need to update the form, to specifically record biodegradable materials and the different dFAD designs.
19. Some FADMO-IWG members also suggested that research on the impacts of tail depth, width and size, and weight on substrates be considered in the future.
20. Chinese Taipei was also seeking clarification on when a FAD is considered active. The Chair noted that this was not clearly defined/discussed by the working group.
21. In the Guidelines for Non-entangling FADs under the raft structure section, Chinese Taipei also supported to retain the original language: “The surface structure, if covered, should **not** be covered with netting or meshed materials (to reduce entanglement of turtles).”
22. The Chair also noted that there was no general support on the suggested edits in the Guidelines for Non-entangling FADs under the tail structure section. In this regard, the original text from the adopted draft guidelines (**FADMO-IWG-04-2020/WP-02**) was retained.

“FADs constructed without netting can eliminate the entanglement of turtles, sharks and finfish species. This will also reduce chances of FAD structures becoming enmeshed in coral reefs and other

sensitive substrates, and research on the impacts of tail depth, width and size on substrates may be considered in the future”

23. After considering additional comments, suggestions and inputs received from the working group members (Chinese Taipei, SPC, USA) that were reflected in the 3rd revision of the updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01). This revised document (FADMO-IWG-05-2021-WP-01_revision 3) was recirculated together with the draft summary report on 9 November 2021 as part of the 4th email communication.
24. The Chair has not received any additional comments related to the 4th email communication. In this regard, the Chair circulated the summary report including the updated draft Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01) for adoption of the FADMO-IWG.

III. CLOSE OF EMAIL COMMUNICATIONS

25. After all issues and concerns of the FADMO-IWG have been discussed and reflected in the summary report and/or the updated Guidelines for Non-entangling and Biodegradable FADs (FADMO-IWG-05-2021-WP-01), the email communications have been closed and the summary report has been adopted on 17 November 2021.

**FAD Management Options Intersessional Working Group
Chair's Contact List/List of Participants**

CCM/Observer	Name	Email
1. Australia	James Larcombe	james.larcombe@agriculture.gov.au
2. Canada	Jennifer Shaw	jennifer.shaw@dfo-mpo.gc.ca
	Sarah Hawkshaw	sarah.hawkshaw@dfo-mpo.gc.ca
3. China	Chen Xuejian	1528957706@qq.com
	Dai Xiaojie,	xjdai@shou.edu.cn
	Wang Xuefang	xfwang@shou.edu.cn
	Zhou Cheng	xjdai@shou.edu.cn
	Sun Cong	admin1@tuna.org.cn
	LI Yan	admin1@tuna.org.cn
4. Cook Islands	Pamela Maru	p.maru@mmr.gov.ck
	Latishia Maui-Mataora	l.maui@mmr.gov.ck
5. European Union	Stamatis Varsamos	stamatios.varsamos@ec.europa.eu
	Dr Josu Santiago	jsantiago@azti.es
	Dr Francisco Abascal	francisco.abascal@ieo.es
	Mrs Marot Laura	Laura.MAROT@ec.europa.eu
6. FSM	Eugene Pangelinan	eugene.pangelinan@norma.fm
	Naiten Bradley Phillip Jr.	bradley.phillip@norma.fm
	Jamel James (Chair)	jamel.james@norma.fm
7. Fiji	Jone Varea Amoe	amoe.jone@gmail.com
8. France	Edouard Weber	edouard.weber@developpement-durable.gouv.fr
9. Indonesia	Putuh Suadela	sdi.djpt@yahoo.com
	Fayakun Satria	fsatria70@gmail.com
	Agustinus Anung Widodo	anungwd@yahoo.co.id
	Lilis Sadiyah	sadiyah.lilis2@gmail.com
	Yayan Hernuryadin	sdi.djpt@yahoo.com
10. Japan	Takumi Fukuda	takumi_fukuda720@maff.go.jp
	Hirohide Matsushima	hiro_matsushima500@maff.go.jp
	Aya Matsushima	aya_matsushima190@maff.go.jp
	Akihito Fukuyama	fukuyama@kaimaki.or.jp
	Toshihiro Hasegawa	hasegawa@kaimaki.or.jp
	Minoru Honda	honda@kaimaki.or.jp
11. Kiribati	Kaon Tiamere	kaont@mfmrd.gov.ki
12. Korea	Sungtaek Oh	republicofkorea@korea.kr
	Ilkang Na	ikna@korea.kr
	Taehoon Won	4indamorning@kofci.org
	Bongjun Choi	bj@kosfa.org
	Sangjin Baek	sjbaek@kosfa.org
13. Marshall Islands	Berry Muller	mullerbk@gmail.com
	Beau Bigler	bbigler@mimra.com
14. Nauru	Julian Itsimaera	julian.itsimaera2016@gmail.com
15. New Zealand	Heather Ward	Heather.Ward@mpi.govt.nz
	Hilary Ayrton	Hilary.Ayrton@mpi.govt.nz
16. Niue	Quentin Hanich	Hanich@uow.edu.au
	Brendon Pasisi	brendon.pasisi@gmail.com

	Ashleigh Pihigia	Ashleigh.Pihigia@mail.gov.nu
	Cherish Tokimua	cherish.tokimua@mail.gov.nu
17. Palau	Kathleen Sisior	utau.sisior@gmail.com
18. Papua New Guinea	Brian Kumasi	bkumasi@fisheries.gov.pg
	Thomas Usu	tusu@fisheries.gov.pg
19. Philippines	Rafael Ramiscal	rv_ram55@yahoo.com
	Joeren Yleana	joerenyleana@yahoo.com
20. Samoa	Ueta Jr Faasili	ueta.faasili@maf.gov.ws
21. Solomon Islands	Edward Honiwala	ehoniwala@fisheries.gov.sb
	Claudius Ralph Halumwane	chalumwane@fisheries.gov.sb
22. Chinese Taipei	Hsiang-Yin Chen	hsiangyin0910@ms1.fa.gov.tw
	Shirley, Shih-Ning Liu	shirley@ofdc.org.tw
	Yee-Chun Chiang	yeechun@ms1.fa.gov.tw
23. Tonga	Tuikolongahau Halafihi	supi64t@gmail.com
24. Tuvalu	Samasoni A Finikaso	samfinikaso70@gmail.com
	Siouala Malua	sioualam@tuvalufisheries.tv
25. USA	Valerie Post (Ms)	valerie.post@noaa.gov
	Stuart Chikami	schikami@westpacfish.com
	Ray Clarke	rclarke@sopactuna.com
	Bill Gibbons-Fly	wgibbons-fly@atatuna.com
	Bill Sardinha	Bill@sardinhacileu.sdcoxmail.com
	Yonat Swimmer	yonat.swimmer@noaa.gov
	David Itano	daveitano@gmail.com
Matt Owens	mowens@trimarinegroup.com	
26. Vanuatu	Christopher Kalna Arthur	kalnaarthur@gmail.com
	Lucy Andrea Joy	ljoy@vanuatu.gov.vu
27. French Polynesia	Anne-Marie Trinh	anne-marie.trinh@drm.gov.pf
	Marie Soehnlén	marie.soehnlén@drm.gov.pf
28. New Caledonia	Manuel Ducrocq	manuel.ducrocq@gouv.nc
29. Tokelau	Feleti Tulafono	ftulafono@gmail.com
	Lesley Gould	lesleykgould@gmail.com
30. FFA	Wetjens Dimmlich	wetjens@ffa.int
	Matthew Hooper	matt.hooper@ffa.int
31. PNA	Ludwig Kumoru	ludwig@pnatuna.com
	Sangaalofa Clark	sangaa@pnatuna.com
	Les Clark	les@pnatuna.com
32. SPC	Paul Hamer	paulh@spc.int
	Lauriane Escalle	laurianee@spc.int
	Joe Scutt Phillips	joes@spc.int
	Tiffany Vidal Cunningham	tiffanyc@spc.int
	Peter Williams	peterw@spc.int
33. ISSF	Victor Restrepo	vrestrepo@iss-foundation.org
34. Ocean Foundation	Dave Gershman	dgershman@oceanfdn.org
35. PEW	Glen Holmes	gholmes@pewtrusts.org
36. SPREP	Karen Baird	karenb@sprep.org
37. WWF	Bubba Cook	acook@wwf.org.nz
38. WCPFC	Feleti Teo	Feleti.Teo@wcpfc.int
	SungKwon Soh	SungKwon.Soh@wcpfc.int
	Elaine Garvilles	Elaine.Garvilles@wcpfc.int
	Riley Kim	riley1126@korea.kr
	Dr Penny Ridings	pennyridings@yahoo.com
	Dr Lara Manarangi-Trott	lara.manarangi-trott@wcpfc.int

ATTACHMENT B: FADMO-IWG-2021-WP-01: Guidelines for Non-Entangling and Biodegradable FADs



**THE FAD MANAGEMENT OPTIONS
INTERSESSIONAL WORKING GROUP
FIFTH SESSION**

EMAIL CORRESPONDENCE

15 October – 15 November 2021

GUIDELINES FOR NON-ENTANGLING AND BIODEGRADABLE FADS

FADMO-IWG-2021-WP-01

15 November 2021

I. BACKGROUND

1. In November 2020, the FAD Management Options Intersessional Working Group (FADMO-IWG) finalized a draft *Guidelines for non-entangling and biodegradable FADs*, which was forwarded to the Commission. The WCPFC17 in December 2020 provided the following recommendation (Paragraph 349, WCPFC17 Summary Report):

349. Noting that the SC16 and TCC16 could not complete the task in paragraph 22 of CMM 2018-01 due to the limited agenda resulting from COVID-19, the Commission tasked SC17 and TCC17 to review the draft guidelines for non-entangling and biodegradable FADs prepared by the FAD Management Options IWG (Attachment K). The FAD Management Options IWG should revisit the draft guidelines based on input from those bodies as well as any additional scientific and technical information on non-entangling and bio-degradable FADs.

2. In the SC17 online discussion forum, there was general support on strengthening the existing provisions to reduce entanglement on FADs as proposed by the FADMO-IWG and acknowledgement that more work is needed before further requirements are put in place for the use of biodegradable materials in FADs. It was also noted that research on the use of biodegradable materials has experienced some delays due to the impacts of COVID-19. It was also acknowledged that lower entanglement risk FADs are not ideal but their use is a transitional step in moving to the desired goal of fully non-entangling FADs. There was also a suggestion on tracking weights of dFADs to estimate the trends in plastic use in dFADs overtime.
3. In the TCC17 plenary and online discussion forum, there was general support for the use of non-entangling and biodegradable FAD materials. There was also a general support for research on the development and application of suitable biodegradable materials in FAD construction including the use of locally available materials. There was a majority support to move to fully non-entangling FADs and to begin transition as soon as possible noting some challenges and difficulties faced by other CCMs

such as logistical concerns about getting materials to ports and other logistical hurdles resulting from the COVID-19 pandemic.

II. UPDATES ON THE GUIDELINES FOR NON-ENTANGLING AND BIODEGRADABLE FAD MATERIALS

4. The FADMO-IWG notes the discussions at SC17¹ and TCC17² including other available scientific and technical information on non-entangling and bio-degradable FADs and the status of WCPFC Project 110, which was funded by contributions from the EU, USA and ISSF. WCPFC Project 110 will conduct trials of non-entangling and biodegradable FADs in the Western and Central Pacific Ocean. These trials are expected to provide essential information to the tuna fishing industry on the designs, types of materials, performance and cost-effectiveness of non-entangling and biodegradable FADs in the WCPO context and support the industry to increase uptake of more ecologically sustainable FAD designs which has experienced some work delays due to the impacts of COVID-19 pandemic and is expected to be completed in late 2023.
5. The FADMO-IWG is supportive of the direction for banning nettings on FADs or use only non-entangling materials and designs to reduce, if not eliminate the risk of entanglement of sharks, sea turtles, cetaceans and other vulnerable species. However, the Commission needs to determine the timing of when to use only non-entangling materials on FADs noting the research on availability of materials and FAD designs in the respective area which was hampered due to the impacts of COVID-19 pandemic and the uncertainty surrounding ongoing disruptions to the global supply chain, more generally. Some members of the FADMO-IWG suggests having some transition period before strengthening the requirements for the use of non-entangling materials, taking into consideration challenges faced by some CCMs posed by the COVID-19 pandemic.
6. The FADMO-IWG recommends using biodegradable materials on the construction of FADs to reduce the number of synthetic debris in the environment but acknowledge 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.
7. The FADMO-IWG recommends that CCMs may continue to encourage its flagged vessels to use available biodegradable materials on FAD construction.
8. The FADMO-IWG recommends that the Commission considers developing a definition of “biodegradable FAD”, ideally in consultation with other t-RFMOs.
9. The FAD-IWG notes that processes to monitor the implementation of non-entangling and/or biodegradable FAD guidelines will need to be discussed in the near future, to assist in their ongoing improvement.
10. The purpose of this paper is to present the updated draft *Guidelines for Non-Entangling and Biodegradable FAD Materials* (**Annex A**) for consideration of WCPFC18.

¹ <https://meetings.wcpfc.int/node/13212>

² <https://meetings.wcpfc.int/node/13813>


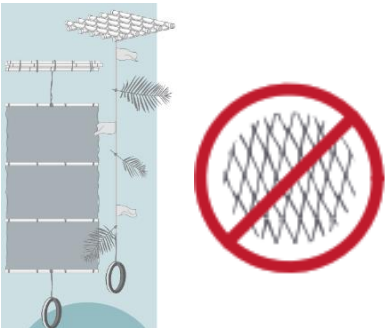
Annex A. GUIDELINES FOR NON-ENTANGLING AND BIODEGRADABLE FADs³

GENERAL GUIDELINES:

- ✓ FADs designed with non-entangling materials and constructed with biodegradable materials are the FAD designs with the least possible negative impact on the ecosystem
- ✓ New FAD designs should also focus on mitigating impact when disintegrating, beaching or sinking if lost or abandoned.
- ✓ FAD recovery activities are encouraged to reduce FAD loss and abandonment.

I. GUIDELINES FOR NON-ENTANGLING FADs

- ✓ FADs constructed without netting can eliminate the entanglement of turtles, sharks and finfish species. This will also reduce chances of FAD structures becoming enmeshed in coral reefs, unravelling/disintegrating and increasing risk of entanglement of marine species and impacts to other sensitive substrates, if lost or abandoned.

FAD Structure	NON-ENTANGLING	
Raft	<ul style="list-style-type: none"> ✓ To the extent of possible, the surface structure should not be covered with netting or meshed materials (to reduce entanglement of turtles). 	
Tail	<ul style="list-style-type: none"> ✓ FADs constructed without netting can eliminate the entanglement of turtles, sharks and finfish species. This will also reduce chances of FAD structures becoming enmeshed in coral reefs and other sensitive substrates, and research on the impacts of tail depth, width and size on substrates may be considered in the future. 	

Based on the 2019 ISSF Guide there are **three (3) categories of FADs from lowest to highest entanglement risk** that are described below. *Considering the variety of designs and materials used worldwide to construct FADs, these designs are just examples, but the important elements are the net type and its configuration.*

³ Will be reviewed and updated when new information becomes available



NON-Entangling FADs

RAFT

- Do not cover with netting.
- If covered, cover with canvas, tarpaulin, shade cloth, or non-entangling materials.

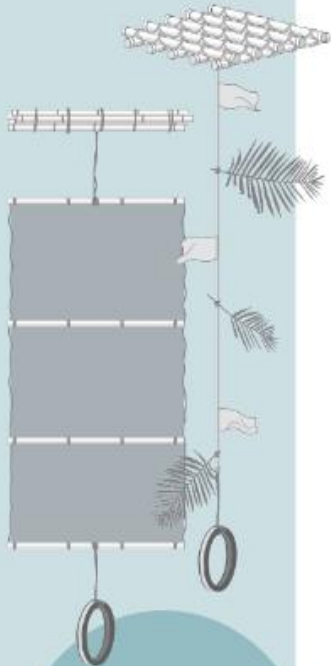
TAIL

- Subsurface structure is made with ropes, canvas or nylon sheets, or other non-entangling materials.

More detail on the previous page.

No netting is used in any components (raft and tail)

These FADs are expected to have no risk of causing entanglement.



LOWER Entanglement Risk FADs

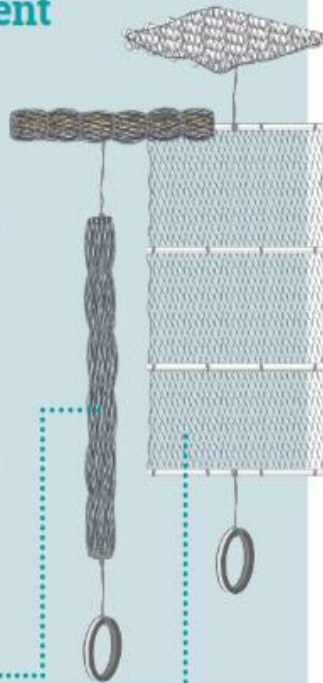
RAFT

- Use only small mesh netting (< 2.5 inch / 7 cm stretched mesh) if covering with net (both upper and submerged parts).
- If small mesh netting is used as cover, it is tightly wrapped, with no loose netting hanging from the raft.

TAIL

- If net is used as submerged tail, could be of any mesh size if tightly tied into sausage-like bundles.
- If open panel netting is used, only small mesh size (< 2.5 inch [7 cm] stretched mesh) can be used, but weight the panel to keep it taut.

Despite using netting, these design elements reduce the risk of entanglement events.



HIGH Entanglement Risk FADs

RAFT

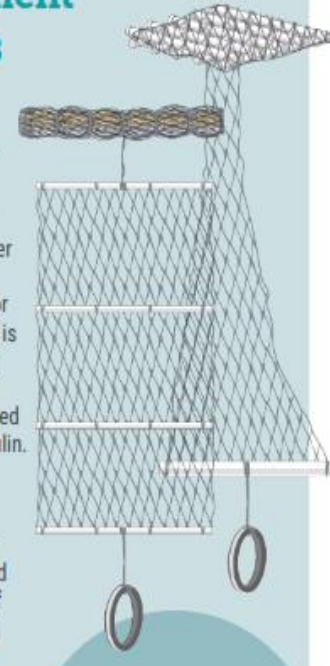
- Covered with large mesh netting (e.g. > 2.5-inch mesh).*
- If mesh size is larger than 2.5 inches (both in the upper or submerged part), it is high entanglement, whether the net is tightly tied or covered by canvas or tarpaulin.

TAIL

- Submerged part of the FAD constructed with open panels of large mesh netting (> 2.5-inch mesh).

*Accounting for mesh sizes available in the market, 2.5 inch (7 cm) mesh size offers the lowest likelihood of entanglements across species and body parts.


These FADs are known to cause entanglements with turtles and sharks.



* Non-Entangling FADs are highly encouraged

II. GUIDELINES FOR BIODEGRADABLE FADs

✓ Acknowledging that more research is needed on the development and application of suitable biodegradable materials in FAD construction including the use of locally available materials, CCMs should continue to encourage its flagged vessels to use available biodegradable materials to the extent possible in FAD construction.

FAD Structure	BIODEGRADABLE	
Raft	<p>✓ Encourage the use of natural and/or biodegradable materials such as bamboo, balsa wood, and other natural materials or in their absence, use of bio-based and biodegradable compounds complying with international standards that degrade without causing impact on the ecosystem.</p> <p>✓ While noting that no feasible biodegradable replacement seems to be currently available, the use of plastic buoys [and containers] for flotation should be reduced as much as possible; for instance, reduce the weight and volume of the FAD structure.</p>	
Tail	<p>✓ Encourage the use of natural and/or biodegradable materials such as cotton ropes and canvas, manila hemp, sisal, coconut fiber, other natural materials. In the absence of such materials, encourage the use of bio-based and biodegradable compounds complying with international standards.</p>	

ATTACHMENT C: AREAS FOR FUTURE RESEARCH

- 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.
- 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.

ATTACHMENT D: WAYS FORWARD FOR THE IMPLEMENTATION OF BIODEGRADABLE FADs

- Acknowledging the current difficulties for the implementation of fully biodegradable FADs as biodegradable materials for all FAD components are not available yet (e.g., floating parts); a stepwise process, including a timeline, towards the implementation of fully biodegradable dFADs should be considered based on the current state of the art of materials available, similar to ISSF's classification for FAD entanglement risk (ISSF, 2019).
- Various projects on non-entangling and biodegradable FAD trials will take place in the WCPO, starting in early 2022. Both, the project by SPC for non-entangling and biodegradable FAD trials (SC17-2021/EB-IP-02) and the project by ISSF, SPC and NOAA to test JellyFADs⁴ will end in late 2022. The results of those trials and other useful trials in other oceans, fleets could start trialing biodegradable FADs before or in early 2023. Those trials would allow the identification of non-entangling and biodegradable FAD structures suitable for fishing for the different parts of FADs designs. It is noted that the research on biodegradable designs continues and may have progress in the end of 2023, early 2024.

⁴ A Jelly-FAD is a type of FAD design that reduces the tension and stress of FAD structure so that the lifetime of the FAD increases when organic materials are used instead of plastic. It drifts with quasi-neutral buoyancy and its tail or drogue is made of a three-dimensional shape and placed in the deepest part of the FAD.

ATTACHMENT E: USEFUL REFERENCES

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