



## Report of the 6<sup>th</sup> IOTC Working Group on FADs

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Online, 10 – 11 June 2024

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Contact details:

Indian Ocean Tuna Commission  
Blend Seychelles  
PO Box 1011  
Victoria, Mahé, Seychelles  
Ph: +248 4225 494  
Fax: +248 4224 364  
Email: [IOTC-secretariat@fao.org](mailto:IOTC-secretariat@fao.org)  
Website: <http://www.iotc.org>

## ACRONYMS

AFAD	Anchored Fish Aggregating Device
ALD	Abandoned, Lost or Discarded
CECOFAD	Catch, effort and ecosystem Impacts of FAD fishing
CMM	Conservation and Management Measures (of the IOTC; Resolutions and Recommendations)
CPCs	Contracting Parties and Cooperating Non-Contracting Parties
CPUE	Catch per unit of effort
DFAD	Drifting Fish Aggregating Device
EMS	Electronic Monitoring Systems
EPO	Eastern Pacific Ocean
FAD	Fish Aggregating Device
FOB	Floating Object
IOTC	Indian Ocean Tuna Commission
MP	Management Procedure
MSE	Management Strategy Evaluation
RFMO	Regional Fisheries Management Organisation
ROS	Regional Observer Scheme
SDG	Sustainable Development Goals
TAC	Total Allowable Catch
WCPO	Western-Central Pacific Ocean

## KEY DEFINITIONS

Bycatch	All species, other than the 16 species listed in Annex B of the IOTC Agreement, caught or interacted with by fisheries for tuna and tuna-like species in the IOTC area of competence.
Discards	Any species, whether an IOTC species or bycatch species, which is not retained onboard for sale or consumption.
Large-scale driftnets	Gillnets or other nets or a combination of nets that are more than 2.5 kilometres in length whose purpose is to enmesh, entrap, or entangle fish by drifting on the surface of, or in, the water column.

## STANDARDISATION OF IOTC WORKING PARTY AND SCIENTIFIC COMMITTEE REPORT TERMINOLOGY

SC16.07 (para. 23) The SC **ADOPTED** the reporting terminology contained in Appendix IV and **RECOMMENDED** that the Commission considers adopting the standardised IOTC Report terminology, to further improve the clarity of information sharing from, and among its subsidiary bodies.

### HOW TO INTERPRET TERMINOLOGY CONTAINED IN THIS REPORT

**Level 1: *From a subsidiary body of the Commission to the next level in the structure of the Commission:***

**RECOMMENDED, RECOMMENDATION:** Any conclusion or request for an action to be undertaken, from a subsidiary body of the Commission (Committee or Working Party), which is to be formally provided to the next level in the structure of the Commission for its consideration/endorsement (e.g., from a Working Party to the Scientific Committee; from a Committee to the Commission). The intention is that the higher body will consider the recommended action for endorsement under its own mandate, if the subsidiary body does not already have the required mandate. Ideally this should be task specific and contain a timeframe for completion.

**Level 2: *From a subsidiary body of the Commission to a CPC, the IOTC Secretariat, or other body (not the Commission) to carry out a specified task:***

**REQUESTED:** This term should only be used by a subsidiary body of the Commission if it does not wish to have the request formally adopted/endorsed by the next level in the structure of the Commission. For example, if a Committee wishes to seek additional input from a CPC on a particular topic, but does not wish to formalise the request beyond the mandate of the Committee, it may request that a set action be undertaken. Ideally this should be task specific and contain a timeframe for the completion.

**Level 3: *General terms to be used for consistency:***

**AGREED:** Any point of discussion from a meeting which the IOTC body considers to be an agreed course of action covered by its mandate, which has not already been dealt with under Level 1 or level 2 above; a general point of agreement among delegations/participants of a meeting which does not need to be considered/adopted by the next level in the Commission's structure.

**NOTED/NOTING:** Any point of discussion from a meeting which the IOTC body considers to be important enough to record in a meeting report for future reference.

**Any other term:** Any other term may be used in addition to the Level 3 terms to highlight to the reader of and IOTC report, the importance of the relevant paragraph. However, other terms used are considered for explanatory/informational purposes only and shall have no higher rating within the reporting terminology hierarchy than Level 3, described above (e.g., **CONSIDERED; URGED; ACKNOWLEDGED**).

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#### EXECUTIVE SUMMARY

The 6<sup>th</sup> Indian Ocean Tuna Commission (IOTC) Working Group on FADs (WGFAD) was held Online on Zoom from 10-11 June 2024. A total of 90 participants (116 at the 5<sup>th</sup> session in 2023, 77 at the 4<sup>th</sup> session in 2023, 111 in 2022, 93 in 2021, and 48 in 2017) attended the Session. The list of participants is provided in [Appendix I](#). The meeting was opened by the Co-Chairs, Mr Avelino Munwane and Dr Gorka Merino, who welcomed participants and formally opened the meeting.

The following are the complete recommendations from the WGFAD06 to the Working Party on Tropical Tunas which are also provided in [Appendix IV](#).

WGFAD06.01 (para 10) The WGFAD **NOTED** that the Secretariat does not have any procedure in place to monitor the numbers of buoys purchased annually and **RECOMMENDED** the SC to **REQUEST** the submission of this information from the CPCs with large-scale purse seine fisheries in the future following paragraph 26 of Res. 19/02 and any subsequent superseding Resolution.

WGFAD06.02 (para 28) The WGFAD **RECOMMENDED** the review of the buoys' limits and the cross-validation of 3-BU and 3-DA data for Scientific purposes.

## 1. OPENING OF THE MEETING

1. The 6<sup>th</sup> Indian Ocean Tuna Commission (IOTC) Working Group on FADs (WGFAD) was held online on Zoom from 10-11 June 2024. A total of 90 participants (116 at the 5<sup>th</sup> session in 2023, 77 at the 4<sup>th</sup> session in 2023, 111 in 2022, 93 in 2021, and 48 in 2017) attended the Session. The list of participants is provided in [Appendix I](#). The meeting was opened by the Co-Chairs, Mr Avelino Munwane and Dr Gorka Merino, who welcomed participants and formally opened the meeting.

## 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

2. The WGFAD **ADOPTED** the Agenda provided in [Appendix II](#). The documents presented to the WGFAD are listed in [Appendix III](#).

## 3. THE IOTC PROCESS: OUTCOMES, UPDATES AND PROGRESS

### 3.1 Outcomes of the 26th Session of the Scientific Committee

3. The WGFAD **NOTED** paper [IOTC-2024-WGFAD06-03](#) which summarizes the outcomes the report of the 26<sup>th</sup> Session of the Scientific Committee (SC26; [IOTC-2023-SC26-R](#)), particularly the recommendations specifically related to the work of the WGFAD:

(Para 99.) The SC **NOTED** the quantitative analyses presented during the meeting (IOTC-2023-WGFAD05-13 and IOTC-2023-WPTT25-INF08). The analyses which were all conducted with a 10-year time frame indicated that the most positive impact on the stocks for the three tuna species, in order of the largest to smallest benefits, would be (i) a three-month complete closure for all gears, (ii) a two-month complete closure for all gears, and (iii) a three-month oceanwide PS log school closure. In addition, several scenarios with closures applied to other gears also achieve the objective of recovering bigeye and yellowfin to the green quadrant of the Kobe plot in 10 years. However, the SC **NOTED** that these benefits were estimated under the assumption that there would not be an increase in catches from other gears during this time and further **NOTED** that the full benefits of these closures would only be seen if there is no reallocation of catches to other gears or time periods. The analyses further indicated that the period that would result in the best outcomes from the closure would be during Q1, Q3 and Q4 for BET and YFT and Q3 and Q4 for SKJ. In addition, the SC **RECALLED** that Resolution 23/03 (para. 3) states that “The IOTC Scientific Committee shall provide advice and recommendations no later than 31st December 2023 on appropriate fishing closures applicable to all fishing gears.” As such the SC **RECOMMENDED** the Commission take these analyses into account, with results shown in Annex IX of the WPTT report (IOTC-2023-WPTT25-R) and Figures a-c (below), and **REQUESTED** the WPTT to consider conducting further analysis intersessionally to assess the impacts of all gears on stock status so that this issue can be comprehensively addressed. The SC **NOTED** that some artisanal fleets may struggle to implement closures due to socio-economic dependence on the resources and so **REQUESTED** that the WGFAD look into excluding artisanal fleets from future analyses.

(Para 101.) The SC **NOTED** that the Jelly-FAD is an example of how the implementation of biodegradable DFADs can be achieved, further **NOTING** that other actions have been also carried out in the Indian Ocean for BIOFAD testing using alternative designs and materials and this work has been presented to the WGFAD and WPEB for many years. The SC further **NOTED** that the IATTC has recently adopted a step-wise approach to the full adoption of biodegradable DFADs (IATTC C-23-04). The SC therefore **RECOMMENDED** that the

Commission initiate an ambitious step-wise approach for the implementation of biodegradable DFADs as soon as possible.

### 3.2 **Outcomes of the 28<sup>th</sup> Session of the Commission and previous decisions of the Commission in relation to FADs**

4. The WGFAD **NOTED** paper [IOTC-2024-WGFAD06-04](#) which summarizes the outcomes of the 28<sup>th</sup> Session of the Commission. The WGFAD **NOTED** the Commission adopted [Resolution 24/02](#) (which supersedes Resolution 19/02) on Management of Drifting Fish Aggregating Devices (FADs) in the IOTC Area of Competence that was of particular interest to the WGFAD.

## 4. REVIEW OF DATA AVAILABLE AT THE SECRETARIAT ON FADS

5. The WGFAD **NOTED** paper [IOTC-2024-WGFAD06-05](#) on an Update of the dynamics of the satellite-tracked buoys used in the large-scale purse seine fishery of the Indian Ocean, 2020-2023, with the following abstract provided by the authors:

*“In 2023, the DFAD purse seine fishery in the Indian Ocean consisted of 47 large-scale purse seiners assisted by 11 support vessels. The total fishing capacity of the fishery was approximately 100,000 m<sup>3</sup> for that year, corresponding to about 74,000 t of fish. Despite recent changes in the fleet, the composition of the fishery has remained stable in recent years. The total number of buoys used in the fishery exhibits significant monthly variability due to the seasonality of the DFAD fishery and the catch limits imposed on purse seiners as part of the yellowfin tuna rebuilding plan. In 2023, an average of 10,700 buoys were used daily in the fishery, equating to roughly 226 buoys monitored daily by each vessel. Maintaining the standing stock of DFADs in purse seine fishing grounds requires continuous deployments to compensate for buoy loss caused by ocean currents, sinking, and retrieval by fishery vessels during buoy transfers to appropriate floating objects encountered at sea. Between January 2020 and December 2023, data collected by the Secretariat indicate that approximately 100,000 buoys were deactivated and replaced to support the fishing activities of the Indian Ocean large-scale purse seine fishery.”*

6. The WGFAD **NOTED** that in the case of the French purse seine fishery, cross-checks are systematically performed with logbook and scientific observer data to check the comprehensiveness of the buoy position data, showing there has been very few cases of buoys missing from the data reported to the Secretariat.
7. The WGFAD **NOTED** that buoys may be reactivated for reuse after deactivation, but that most of the 100,000 buoys used in the fishery since 2020 were made of 1-2 distinct sections, i.e., only recycled once.
8. The WGFAD **ACKNOWLEDGED** that the new IOTC form [3DA](#), which will be used for the statistical year 2023, provides a lot of detailed information on the activities, materials, and design of the DFADs on an operational basis, **AGREEING** that this form greatly improves previous Form 3FA.
9. The WGFAD **NOTED** that the daily dynamics of buoys activations-deactivations and information on buoy sharing (i.e., multiple purse seine vessels accessing information transmitted from a single buoy) explain the large differences observed in summary statistics provided in Table A2 of paper IOTC-2024-WGFAD06-05.
10. The WGFAD **NOTED** that the Secretariat does not have any procedure in place to monitor the numbers of buoys purchased annually and **RECOMMENDED** the SC to **REQUEST** the submission of



this information from the CPCs with large-scale purse seine fisheries in the future following paragraph 26 of Res. [19/02](#) and any subsequent superseding Resolution.

## 5. COMMISSION REQUESTS TO THE SC UNDER RESOLUTIONS 24/02

### 5.1 *Request by the WPCMM07 to review the FAD definition for the IOTC Glossary*

11. The WGFAD **NOTED** information paper [IOTC-2024-WGFAD06-INF01](#), which provide the terms and definitions of the draft Glossary to be used by Members when drafting proposals for IOTC Resolutions for the Commission.
12. The WGFAD **NOTED** that this working definition has been extensively discussed in previous FAD WGs without reaching an agreement as a more detail definition is required for scientific purposes (e.g., CECOFA definitions) and, thus, the WGFAD **AGREED** not to open this discussion again.
13. The WGFAD also **NOTED** that FAO has a working definition of FADs, and the WGFAD also **NOTED** that the 2<sup>nd</sup> Meeting of the Joint Tuna RFMOs Working Group on FADs ([Appendix 4](#) of the report of the 2<sup>nd</sup> Meeting of the Joint Tuna RFMO Working Group on FADs, 8-9 May 2019, San Diego) has also provided definitions and terms about FADs, including the same FAD definition as being used by the WPCMM07.
14. The WGFAD **AGREED** that the FAD definition discussed by WPCMM07 and currently used in Resolution [24/02](#) meets the needs of the IOTC Commission for management purposes and could therefore be used to draft proposals for IOTC Resolutions for the Commission. However, the WGFAD **CONSIDERED** and **AGREED** that a more detailed definition is needed for scientific purposes and **NOTED** that this definition is already used in the IOTC [3DA Form](#), meeting the needs of the Scientific Committee.

### 5.2 *Resolution 24/02 On Management of Drifting Fish Aggregating Devices (DFADs) in the IOTC Area of Competence*

15. The WGFAD **NOTED** a presentation providing an overview of the main objectives and elements included in Res. [24/02](#), including the compulsory marking of the DFADs, the development and implementation of the DFAD register, and phasing of the use of biodegradable FADs.
16. The WGFAD **NOTED** that the DFAD register, covering all instrumented buoys deployed in the IOTC area of competence, will be presented at the Commission meeting in 2025, tested with a selection of vessels during the second semester of 2025, and become effective as of 1 January 2026.
17. The WGFAD **ACKNOWLEDGED** that the DFAD marking would only concern the man-made rafts and not the natural floating objects, and that a cost-effective, robust, and easy-to-implement method remains to be developed.

### 5.3 *Resolution 23/01 On Management of Anchored Fish Aggregating Devices (AFADs)*

18. The WGFAD **ACKNOWLEDGED** that the Secretariat has received AFAD management plans (MPs) from Maldives (n = 65), Mauritius (n = 28), La Réunion (n = 43), Mayotte (n = 14), and Indonesia (n = 1,909). The MPs include information on scope, institutional arrangements, AFAD design and materials, applicable areas, and means for monitoring and reviewing the AFAD MPs.
19. The WGFAD further **NOTED** that methodologies for recording and reporting data specified in Annex II of Res. [23/01](#) are also part of the MP guidelines, and that these data include all fishing activities conducted around AFADs, including catch and bycatch, whether retained or discarded dead or alive. Such data will start to be reported in 2024 for the statistical year 2023.

## 6. REVIEW OF ANY INFORMATION AVAILABLE ON FADS

20. The WGFAD **NOTED** paper [IOTC-2024-WGFAD06-06](#), which looked at the distribution of deactivated DFADs used by the French Indian Ocean tropical tuna purse-seine fishery, with the following abstract provided by the authors:

*“The presence of Abandoned, Lost or otherwise Discarded Fishing Gears, including drifting Fish Aggregating Devices (DFADs), in marine ecosystems poses significant ecological and socioeconomic concerns. The estimation of the number of DFADs in the marine environment is challenging due to the loss of tracking information when DFAD tracking buoys are remotely deactivated. For the first time, a data set of DFADs buoy positions including those that had previously been remotely deactivated has been made available for the period July-August 2020. Data from this period provides valuable insights into the life expectancy, spatial distribution, and status of deactivated DFAD buoys, enabling a more accurate assessment of DFAD presence and impacts. Deactivated buoys represented a 17.2% increase in the total number of tracked objects, and we estimate the in-water half-life of deactivated DFAD tracking buoys to be 101 days. Including deactivated buoys increases the number of strandings during the SP by 23.7 %. Nevertheless, the representativity of these results is unknown given the limited spatio-temporal and numerical extent of our data, highlighting the importance of availability of comprehensive data on DFADs to effectively estimate their total numbers and mitigate their environmental impacts.”*

21. The WGFAD **NOTED** that only the presentation of the study was made available to the meeting as the article was in the peer-review process, **ACKNOWLEDGING** that the final version of the paper will be communicated as soon as published.
22. The WGFAD **NOTED** the relevance of this study to design DFAD recovery programs and the importance of collecting DFAD trajectory information after their buoys have been deactivated.
23. The WGFAD **NOTED** that about 86.4% of the buoys stranded outside the special period and that these could have been avoided if their loss was duly communicated and a recovery program was in place.
24. The WGFAD **NOTED** that the data used for this study might not be available on a normal basis because of their commercial information. However, the group **NOTED** that this information would be crucial to quantify the number of DFADs in the ocean if made available by the industry.
25. The WGFAD **NOTED** paper [IOTC-2024-WGFAD06-07](#), which provides an update on biodegradable FADs, with the following abstract provided by the authors:

*“Document IOTC-2024-WGFAD06-07 updates different aspects related to biodegradable FADs, such as the review of the recommendations previously adopted by the group at different t-RFMOs, the current resolutions/recommendations regarding biodegradable FADs at different t-RFMOs, the status of the definition and categories of biodegradable FADs adopted in Resolution 24/02 and compared with these included at other t-RFMOs, the data collection requirements of Resolution 24/02 to classify biodegradable FADs and difficulties observed from available data sources (FAD logbooks and observers) to response to it, past, current and future trials of new materials and models around the world and, finally, the document reviews the recommendations made to the groups to advance in the development of biodegradable FADs in the Indian Ocean.”*

26. The WGFAD **NOTED** that certified bioplastics degrade into CO<sub>2</sub>, water and organic matter. In this regard, if the bioplastics are certified with the standards adopted by the IATTC and IOTC, they should not degrade to microplastics. However, further research is needed to clarify both bioplastics functionality for fishing operation and potential environmental impacts derived from them (e.g., toxicity, degradation period, generation of microplastics).
27. The WGFAD **NOTED** the biodegradable DFAD implementation approach between the RFMOs and further **NOTED** that the description of the biodegradable categories could need clarification within the adopted definition particularly with the use of the terms subsurface and submerged for the structure of the DFAD, as well the need for review of the data collection systems adapts exiting forms to identify biodegradable categories.
28. The WGFAD **RECOMMENDED** the review of the buoys' limits and the cross-validation of 3-BU and 3-DA data for Scientific purposes.

## 7. WRAP UP, SUMMARY OF DISCUSSIONS AND RECOMMENDATIONS

### 7.1 *Plan of work for the WGFAD leading up to the next session in October (All)*

29. The WGFAD **NOTED** the smooth running of this meeting, attributing the reduced controversies to the recent adoption of the Resolution on DFADs (Res. [24/02](#)) at the latest Commission meeting. The WGFAD further **NOTED** that fewer papers were presented, but these were more focused on scientific aspects and the specifics of the Resolution.
30. The WGFAD **NOTED** that if this trend continues then it may not be necessary to hold specific meetings for the WGFAD and instead relevant papers could be presented during the WPTT. **ACKNOWLEDGING** that the Commission would need to be informed on any changes to the Working Group's functioning, the WGFAD **NOTED** that it is likely to be simpler to get agreement from the Commission on this change if there are no budgetary implications. The WGFAD **AGREED** to discuss this matter further during the next meeting in October.
31. The WGFAD **NOTED** the upcoming task of developing the DFAD register as mandated by Res. [24/02](#), **ACKNOWLEDGING** that this responsibility will fall on the Secretariat. The WGFAD also **NOTED** the requirement to report back to the Commission on the progress of this task in 2025, highlighting the need for expert feedback on how to address this requirement. Additionally, the WGFAD **NOTED** that although the register is primarily viewed by CPCs as a compliance tool, the data section of the Secretariat will still be heavily involved in its development and management. Finally, the WGFAD **NOTED** and appreciated the EU's offer to support the Secretariat in this task, both in terms of guidance and financial assistance.
32. The consolidated list of Recommendations made by the WGFAD are found in [Appendix IV](#).

## 8. REMARKS AND CLOSING OF THE 6<sup>TH</sup> SESSION OF THE WORKING GROUP ON FADS

33. The report of the 6<sup>th</sup> Session of the Working Group on FADs (IOTC-2024-WGFAD06-R) was **ADOPTED** by correspondence.

**APPENDIX I**  
**LIST OF PARTICIPANTS**

**Co-Chairperson**  
Dr Gorka **Merino**  
AZTI  
[gmerino@azti.es](mailto:gmerino@azti.es)

**Co-Chairperson**  
Mr. Avelino **Munwane**  
Ministry of Sea, Inland  
Waters and Fisheries  
[avelinomunwane@gmail.com](mailto:avelinomunwane@gmail.com)

**Other Participants**

Dr Shiham **Adam**  
IPNLF  
[shiham.adam@ipnlf.org](mailto:shiham.adam@ipnlf.org)

Mr Nattawut **Aiemubolwan**  
Department of Fisheries  
[nattawut.mnk62@gmail.com](mailto:nattawut.mnk62@gmail.com)

Dr Nekane **Alzorriz**  
ANABAC  
[nekane@anabac.org](mailto:nekane@anabac.org)

Mr Roger **Amate**  
ANABAC  
[nekane@anabac.org](mailto:nekane@anabac.org)

Mr Agustinus **Anung Widodo**  
Fisheries Research Center  
[anungwd@yahoo.co.id](mailto:anungwd@yahoo.co.id)

Mr Zephania **Arnold**  
WWF  
[zarnold@wwftz.org](mailto:zarnold@wwftz.org)

Dr Abdul **Azeez**  
ICAR-CMFRI  
[azeez.cr7@gmail.com](mailto:azeez.cr7@gmail.com)

Dr Jose Carlos **Baez**  
IEO-CSIC  
[josecarlos.baez@ieo.csic.es](mailto:josecarlos.baez@ieo.csic.es)

Mr Priyal **Bunwaree**  
Blue Marine Foundation  
[priyal@bluemarinefoundation.com](mailto:priyal@bluemarinefoundation.com)

Mr John **Burton**  
SFACT  
[john.burton@SFACT.org](mailto:john.burton@SFACT.org)

Dr Manuela Capello  
IRD  
[manuela.capello@ird.fr](mailto:manuela.capello@ird.fr)

Mr Kuruppuge  
**Chandrakumara**  
Department of Fisheries and  
Aquatic Resources  
[ksckdumidi@gmail.com](mailto:ksckdumidi@gmail.com)

Mr Hary **Christijanto**  
Directorate of fish resources  
management  
[hchristijanto@yahoo.com](mailto:hchristijanto@yahoo.com)

Dr Nagore **Cuevas**  
AZTI  
[ncuevas@azti.es](mailto:ncuevas@azti.es)

Mr Santiago **Déniz**  
Instituto Español de  
Oceanografía  
[santiago.deniz@ieo.csic.es](mailto:santiago.deniz@ieo.csic.es)

Ms Yasmina **Diaz**  
Satlink  
[yds@satlink.es](mailto:yds@satlink.es)

Dr Amaël **Dupaix**  
IRD  
[amael.dupaix@ird.fr](mailto:amael.dupaix@ird.fr)

Dr Antoine **Duparc**  
IRD  
[antoine.duparc@ird.fr](mailto:antoine.duparc@ird.fr)

Dr Maite **Erauskin-  
Extramiana**  
AZTI  
[merauskin@azti.es](mailto:merauskin@azti.es)

Mr Laurent **Floc'h**  
IRD – MARBEC  
[laurent.floch@ird.fr](mailto:laurent.floch@ird.fr)

Ms Veronique Garrioch  
IBL Seafood  
[vgarrioch@iblseafood.com](mailto:vgarrioch@iblseafood.com)

Ms Kathryn **Gavira**  
Satlink  
[kgo@satlink.es](mailto:kgo@satlink.es)

Dr Patrice **Guillotreau**  
IRD  
[patrice.guillotreau@ird.fr](mailto:patrice.guillotreau@ird.fr)

Mr Ignatius **Hargiyatno**  
IRD  
[ignatius.hargiyatno@ird.fr](mailto:ignatius.hargiyatno@ird.fr)

Mr Miguel **Herrera**  
OPAGAC  
[miguel.herrera@opagac.org](mailto:miguel.herrera@opagac.org)

Dr Glen **Holmes**  
The Pew Charitable Trusts  
[gholmes@pewtrusts.org](mailto:gholmes@pewtrusts.org)

Mrs Ane  
**Iriondo Arrillaga**  
ECHEBASTAR  
[a.iriondo@echebaster.com](mailto:a.iriondo@echebaster.com)

Dr David **Kaplan**  
IRD  
[david.kaplan@ird.fr](mailto:david.kaplan@ird.fr)

Dr Farhad **Kaymaram**  
IFSRI  
[farhadkaymaram@gmail.com](mailto:farhadkaymaram@gmail.com)

Ms Jess **Keedy**  
DEFRA  
[jess.keedy@defra.gov.uk](mailto:jess.keedy@defra.gov.uk)

Ms Beatrice **Kinyua**  
SFACT  
[beatrice.kinyua@sfact.org](mailto:beatrice.kinyua@sfact.org)

Dr Toshihide **Kitakado**  
Tokyo University of Marine  
Science and Technology  
[kitakado@kaiyodai.ac.jp](mailto:kitakado@kaiyodai.ac.jp)

Mr Iñigo **Krug**  
AZTI  
[ikrug@azti.es](mailto:ikrug@azti.es)

Ms Chonticha **Kumyoo**  
Department of Fisheries  
[chonticha.dof@gmail.com](mailto:chonticha.dof@gmail.com)

Mr Luis Wencheng **Lau Medrano**  
IRD  
[luis.lau-medrano@ird.fr](mailto:luis.lau-medrano@ird.fr)

Dr Frédéric **Le Manach**  
BLOOM  
[fredericlemanach@bloomasociation.org](mailto:fredericlemanach@bloomasociation.org)

Dr Maria Teresa **Losada Ros**  
Satlink  
[tlr@satlink.es](mailto:tlr@satlink.es)

Ms Joanne **Lucas**  
SFA  
[j.alucas@sfa.sc](mailto:j.alucas@sfa.sc)

Mr Benoit **Marcoux**  
European Commission - DG  
Mare  
[benoit.marcoux@ec.europa.eu](mailto:benoit.marcoux@ec.europa.eu)

Ms Laura **Marot**  
European Commission - DG  
Mare  
[Laura.marot@ec.europa.eu](mailto:Laura.marot@ec.europa.eu)

Dr Naoto **Matsubara**  
Fisheries Resources Institute,  
Japan Fisheries Research and  
Education Agency  
[matsubara\\_naoto84@fra.go.jp](mailto:matsubara_naoto84@fra.go.jp)

Dr Takayuki **Matsumoto**  
Fisheries Resources Institute  
[matsumoto\\_takayuki77@fra.go.jp](mailto:matsumoto_takayuki77@fra.go.jp)

Dr Alexandra **MAUFROY**  
ORTHONGEL  
[amaufroy@orthongel.fr](mailto:amaufroy@orthongel.fr)

Dr Gorka **Merino**  
AZTI  
[gmerino@azti.es](mailto:gmerino@azti.es)

Dr Giancarlo Helar **Morón Correa**

AZTI  
[gmoron@azti.es](mailto:gmoron@azti.es)

Dr Hilario **Murua**  
ISSF  
[hmurua@iss-foundation.org](mailto:hmurua@iss-foundation.org)

Mr Ajay **Nakhawa**  
ICAR-CMRI  
[ajaynakhawa@hotmail.com](mailto:ajaynakhawa@hotmail.com)

Mr Stephen **Ndegwa**  
Kenya Fisheries Service  
[ndegwafish@yahoo.com](mailto:ndegwafish@yahoo.com)

Mr Lalu Lutfi **Nizzami**  
Ministry of Marine Affairs  
and Fisheries  
[lalulutfi@gmail.com](mailto:lalulutfi@gmail.com)

Mr Alvaro **Nunez**  
Zunibal  
[alvaro.nunez@zunibal.com](mailto:alvaro.nunez@zunibal.com)

Ms Jiyoung **Oh**  
Ministry of Oceans and  
Fisheries  
[im5g0@korea.kr](mailto:im5g0@korea.kr)

Mr Marc **Owen**  
Department for  
Environment, Food and  
Rural Affairs  
[marc.owen@defra.gov.uk](mailto:marc.owen@defra.gov.uk)

Mr Teodoro **Patrocinio Ibarrola**  
CSIC  
[teo.ibarrola@ieo.csic.es](mailto:teo.ibarrola@ieo.csic.es)

Mr John **Pearce**  
MRAG Ltd  
[j.pearce@mrag.co.uk](mailto:j.pearce@mrag.co.uk)

Mr Dinesh **Peiris**  
Department of Fisheries and  
Aquatic Resources  
[dineshdfar@gmail.com](mailto:dineshdfar@gmail.com)

Mr Martin **Purves**  
International Pole & Line  
Foundation (IPNLF)  
[martin.purves@ipnlf.org](mailto:martin.purves@ipnlf.org)

Ms Elisa **Radegonde**

Seychelles Fishing Authority  
[esocrate@sfa.sc](mailto:esocrate@sfa.sc)

Mr Paul **Rafertry**  
Zunibal  
[paul.rafertry@zunibal.com](mailto:paul.rafertry@zunibal.com)

Mr Oktavian **Rahardjo**  
Fising Technology  
Development Centre  
Semarang  
[bedjoitbms95@gmail.com](mailto:bedjoitbms95@gmail.com)

Mr Fariborz **Rajaei**  
Iran Fisheries Organization  
[rajaeif@gmail.com](mailto:rajaeif@gmail.com)

Ms Zo Olive  
**Rakotonanahary**  
Ministry of Fisheries and  
Blue Economy Madagascar  
[znirintsoa@gmail.com](mailto:znirintsoa@gmail.com)

Mrs Lourdes **Ramos**  
IEO-CSIC  
[mlourdes.ramos@ieo.csic.es](mailto:mlourdes.ramos@ieo.csic.es)

Ms Jess **Rattle**  
Blue Marine Foundation  
[jess@bluemarinefoundation.com](mailto:jess@bluemarinefoundation.com)

Ms Marzieh Razaghi  
Iran fisheries org  
[marziehrazaghi.shilathormozgan@gmail.com](mailto:marziehrazaghi.shilathormozgan@gmail.com)

Mr Stuart **Reeves**  
Cefas  
[stuart.reeves@cefas.gov.uk](mailto:stuart.reeves@cefas.gov.uk)

Dr Surya **S**  
CMFRI  
[revandasurya@gmail.com](mailto:revandasurya@gmail.com)

Mr San **San**  
Fishing Technology  
Development Centre  
Semarang  
[aasansan85@gmail.com](mailto:aasansan85@gmail.com)

Dr Valentin **Schatz**  
Leuphana University of  
Lüneburg  
[v.j.schatz@gmail.com](mailto:v.j.schatz@gmail.com)

Mr **Scott Schrempf**  
Dalhousie University  
[scott.schrempf@dal.ca](mailto:scott.schrempf@dal.ca)

Dr Iker **Zudaire**  
AZTI  
[izudaire@azti.es](mailto:izudaire@azti.es)

Mr Umair **Shahid**  
WWF  
[ushahid@wwf.org.pk](mailto:ushahid@wwf.org.pk)

#### IOTC Secretariat

Mr Mohamed **Shimal**  
Maldives Marine Research  
Institute  
[mohamed.shimal@mmri.gov.mv](mailto:mohamed.shimal@mmri.gov.mv)

Dr Paul **de Bruyn**  
[paul.debruyne@fao.org](mailto:paul.debruyne@fao.org)

Dr Emmanuel **Chassot**  
[Emmanuel.Chassot@fao.org](mailto:Emmanuel.Chassot@fao.org)

Dr Mathew **Silas**  
Deep Sea Fishing Authority  
[mathew.silas@dsfa.go.tz](mailto:mathew.silas@dsfa.go.tz)

Ms Cynthia **Fernandez-Diaz**  
[Cynthia.FernandezDiaz@fao.org](mailto:Cynthia.FernandezDiaz@fao.org)

Dr Hussain **Sinan**  
Ministry of Fisheries and  
Ocean Resources  
[hussain.sinan@fisheries.gov.mv](mailto:hussain.sinan@fisheries.gov.mv)

Mr Dan **Fu**  
[Dan.fu@fao.org](mailto:Dan.fu@fao.org)

Ms Lauren **Nelson**  
[lauren.nelson@fao.org](mailto:lauren.nelson@fao.org)

Mr Weerapol  
**Thitipongtrakul**  
Department of Fisheries  
[weerapol.t@gmail.com](mailto:weerapol.t@gmail.com)

Ms Lucia **Pierre**  
[lucia.pierre@fao.org](mailto:lucia.pierre@fao.org)

Dr Alexander **Tidd**  
IRD  
[emperorfish@gmail.com](mailto:emperorfish@gmail.com)

Mr Jon **Uranga**  
AZTI-BRTA  
[juranga@azti.es](mailto:juranga@azti.es)

Mr Tri **Wahyu Wibowo**  
Fishing Technology  
Development Centre  
[wahyumayla@yahoo.com](mailto:wahyumayla@yahoo.com)

Mr Tri **Wibowo**  
BBPI Semarang  
[wahyumayla@yahoo.com](mailto:wahyumayla@yahoo.com)

Ms Virda **Wulandari**  
Directorate of fish resources  
management  
[virda.wulandari92@gmail.com](mailto:virda.wulandari92@gmail.com)

Dr Iris **Ziegler**  
Sharkproject  
[i.ziegler@sharkproject.org](mailto:i.ziegler@sharkproject.org)

**APPENDIX II**  
**AGENDA FOR THE 6<sup>TH</sup> WORKING GROUP ON FADS**

**Date:** 10 - 11 June 2024

**Location:** Zoom

**Venue:** Virtual

**Time:** 12:00 – 16:00 (Seychelles time)

**Co-Chair:** Dr Gorka Merino (European Union); **Co-Chair:** Mr Avelino Munwane

- 1. OPENING OF THE MEETING** (Co-Chairs)
- 2. ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION** (Co-Chairs)
- 3. THE IOTC PROCESS: OUTCOMES, UPDATES, AND PROGRESS** (Secretariat)
  - 3.1. Outcomes of the 26<sup>th</sup> Session of the Scientific Committee
  - 3.2. Outcomes of the 28<sup>th</sup> Session of the Commission and previous decisions of the Commission in relation to FADs
- 4. REVIEW OF THE DATA AVAILABLE AT THE SECRETARIAT ON FADS** (IOTC Secretariat)
- 5. COMMISSION REQUESTS TO THE SC UNDER RESOLUTION 24/02** (All)
  - 5.1. Request by the WPCMM07 to review the FAD definition for the IOTC Glossary
  - 5.2. Resolution 24/02 *On Management of Drifting Fish Aggregating Devices (DFADs) in the IOTC Area of Competence*
  - 5.3. Plan of work for the WGFAD leading up to the next session in October (All)
- 6. REVIEW OF ANY NEW INFORMATION AVAILABLE ON FADS**
- 7. WRAP UP, SUMMARY OF DISCUSSIONS AND RECOMMENDATIONS** (Co-Chairs)
- 8. ADOPTION OF THE REPORT OF THE 6<sup>th</sup> SESSION OF THE WORKING GROUP ON FADS** (Co-Chairs)

**APPENDIX III**  
**LIST OF DOCUMENTS**

Document	Title
IOTC-2024-WGFAD06-01a	Draft agenda of the 6 <sup>th</sup> Working Group on FADs
IOTC-2024-WGFAD06-01b	Draft annotated agenda of the 6 <sup>th</sup> Working Group on FADs
IOTC-2024-WGFAD06-02	List of documents of the 6 <sup>th</sup> Working Group on FADs
IOTC-2024-WGFAD06-03	Outcomes of the 26 <sup>th</sup> Session of the Scientific Committee (IOTC Secretariat)
IOTC-2024-WGFAD06-04	Outcomes of 28 <sup>th</sup> Session of the Commission (IOTC Secretariat)
IOTC-2024-WGFAD06-05	An update on the dynamics of the satellite-tracked buoys used in the large-scale purse seine fishery of the Indian Ocean, 2020-2023 (IOTC Secretariat)
IOTC-2024-WGFAD06-06	First look at the distribution of deactivated DFADs used by the French Indian Ocean tropical tuna purse-seine fishery (Lau-Medrano et al.)
IOTC-2024-WGFAD06-07	Update on Biodegradable DFADS: current status and future prospects (Zudaire et al.)
IOTC-2024-WGFAD06-INF01	Terms and definitions of the draft Glossary to be used by Members when drafting proposals for IOTC Resolutions for the Commission (IOTC Secretariat)
IOTC-2024-WGFAD06-INF02	Assessing Drifting Fish Aggregating Device (DFAD) Abandonment under International Marine Pollution Law
IOTC-2024-WGFAD06-INF03	Resolution 24/02
IOTC-2024-WGFAD06-INF04	Resolution 23/01



**APPENDIX IV****CONSOLIDATED RECOMMENDATIONS OF THE 6<sup>TH</sup> SESSION OF THE WORKING GROUP ON FADS**

WGFAD06.01 (para 10) The WGFAD **NOTED** that the Secretariat does not have any procedure in place to monitor the numbers of buoys purchased annually and **RECOMMENDED** the SC to **REQUEST** the submission of this information from the CPCs with large-scale purse seine fisheries in the future following paragraph 26 of Res. [19/02](#) and any subsequent superseding Resolution.

WGFAD06.02 (para 28) The WGFAD **RECOMMENDED** the review of the buoys' limits and the cross-validation of 3-BU and 3-DA data for Scientific purposes.