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‘The Myth That Current Science Can Inform Precautionary Drifting FAD Limits’

A Shark Guardian submission to the IOTC ad hoc working group on FADs (WGFAD02)

– Industrial purse seine fisheries have greatly increased the environmental impact of their operations, and become an important driver of overfishing, by rapidly expanding their use of drifting fish aggregating devices (dFADs) over the last decade. Such overfishing has negatively impacted shark populations worldwide, causing a biodiversity crisis which has resulted in over a third of all shark species now determined by scientists as threatened with extinction¹.

Drifting fish aggregating devices are deployed with satellite tracking and communication technologies that improve the commercial efficiency of purse seine fleets in the Indian Ocean and globally.

Entanglement mortality of silky sharks in the Indian Ocean is five to ten times that of the known silky shark bycatch from the Indian Ocean region’s purse-seine fleet. Estimates from a single ocean (480,000 to 960,000 silky sharks) mirror those from all world fisheries combined (400,000 to two million silky sharks), a situation which clearly requires immediate management intervention and extensive monitoring².

Moreover, concerns about the Indian Ocean yellowfin tuna stock condition have highlighted that 97% of dFAD catch of yellowfin tuna in the Indian Ocean are juveniles³, and raised the profile of ghost fishing⁴, bycatch, pollution⁵, ecosystem and habitat damage⁶ caused by these devices. While dFAD loss rates in the Indian Ocean have not been rigorously determined or shared, as an example, over 90%⁷ of dFADs deployed in the Western Central Pacific region are lost or intentionally abandoned. This undermines efforts to sustainably manage fisheries for sharks, tuna and tuna-like species.

Although increasing awareness of dFAD issues can be expected to drive management improvements, Shark Guardian has noticed some concerning contradictions during recent IOTC

1 [https://www.cell.com/current-biology/fulltext/S0960-9822\(21\)01198-2](https://www.cell.com/current-biology/fulltext/S0960-9822(21)01198-2)

2 https://www.researchgate.net/publication/258173571_Looking_behind_the_curtain_Quantifying_massive_shark_mortality_in_fish_aggregating_devices

3 <https://www.blumarinefoundation.com/wp-content/uploads/2020/10/Failure-To-Manage-Yellowfin-Tuna-by-the-IOTC-FINAL.pdf>

4 https://www.researchgate.net/publication/258173571_Looking_behind_the_curtain_Quantifying_massive_shark_mortality_in_fish_aggregating_devices

5 <https://www.tandfonline.com/doi/full/10.1080/00908320.2021.1901342>

6 https://www.researchgate.net/publication/258173571_Looking_behind_the_curtain_Quantifying_massive_shark_mortality_in_fish_aggregating_devices

7 <https://meetings.wcpfc.int/node/12589>

discussions about dFAD management. Delegations of some nations with significant purse seine interests have been delaying application of suggested dFAD management improvements by requiring the development of “science based” dFAD limits before agreeing to changes. Some have also implied that the precautionary approach should not be applied to dFAD management, incidentally while also requesting the development of “science based” dFAD limits.

One key contradiction that came to light during the 25th Session of the IOTC in June 2021, is that the exact delegations suggesting that “science based” dFAD limits need to be developed before applying many proposed dFAD management improvements, are the same delegations that are only providing dFAD data to the IOTC Compliance Committee. The data available to these nations’ fleets in near real time, which are suggested to be able to inform “science based” dFAD limits, were in fact being withheld from the IOTC Scientific Committee.

Noting the above, some questions arise:

Is there already a dedicated scientific mechanism for setting dFAD limits?

If there exists a dedicated scientific mechanism for setting dFAD limits, what are its parameters, targets and data requirements?

Has a dedicated scientific mechanism for setting dFAD limits been successfully applied in other regions or RFMOs?

We believe the answer to the above three questions is negative. Other RFMOs have recognised the destructive nature of dFADs and have applied the precautionary principle to fisheries management when establishing and revising their dFAD limits. This has typically happened in the absence of sufficient data to inform any dedicated, comprehensive or predetermined scientific process designed specifically for defining such limitations or revisions. None of the delegations currently calling for “science based” dFAD limits in the IOTC have proposed a fair and rigorous scientific process to achieve their request. Without such a proposal it remains unclear whether or not current data being collected by purse seine fleets in the Indian Ocean could inform such a scientific process, if it exists or can be developed?

Delegations calling for “science based” dFAD limits have also not yet proposed what the scientific objective target(s) would be? Would they seek to maximise the number of dFADs that can be sustainably deployed and used each year? If so, there is currently insufficient data on the many dFAD ecosystem impacts (i.e. ghost fishing, pollution, habitat damage) to accurately inform such an assessment, and especially so in the Indian Ocean. Since the core principles of sustainable fisheries management suggest a precautionary approach be applied to uncertain circumstances, Shark Guardian believes that the most suitable approach would be to comprehensively phase out the use of dFADs until their genuinely sustainable and legal deployment and use can be scientifically evidenced.

In summary, the establishment and revision of all RFMO dFAD limits have been primarily driven by uncertainty about dFAD impacts and the need to apply a precautionary and ecosystem approach to fisheries management. Many RFMOs also typically reference the use of “best available science” to inform dFAD management, but none define a process for setting “science based dFAD limits”. The June meeting of IOTC also highlighted that such science will continue to be hampered by a lack of data provision – not availability – as such data is clearly available in real, or near real, time to the industry, until purse seine fisheries operate more transparently in the Indian Ocean. Until such

data is made available to RFMOs, scientists and policy makers, these problems will persist and will continue to contradict industry claims of “science based” dFAD limits.

To conclude, recognising the many negative stock and destructive impacts on ecosystems caused by dFADs, and to combat the scourge of overfishing that is decimating Indian Ocean shark and juvenile yellowfin tuna populations, we propose that an immediate moratorium be imposed on the deployment of dFADs in the Indian Ocean until a rigorous scientific framework based on the precautionary principle can be established to demonstrate whether dFADs can be genuinely sustainably deployed, or not.