

## Position Statement on Required Improvements in the Management of DFADs at the 6<sup>th</sup> Special Session of the Indian Ocean Tuna Commission

**Sharks and rays are in a crisis** with populations of pelagic sharks having been reduced globally by more than 70% due to industrial fishing over the last 50 years and three quarters of all pelagic sharks and rays are now threatened by extinction (N. Pacoureaux 2021)<sup>i</sup> after decades of overfishing with literally no limits in place.

In the Indian Ocean poor monitoring, continued underreporting of catch efforts and discards, and massive unobserved shark mortality from entanglement in ghost gear and post release mortality have led to stock statuses of most pelagic sharks being highly uncertain. Neither harvest control rules nor reference points exist for any pelagic shark species in the Convention area and in the absence of a precautionary approach little to no management or conservation measures have been implemented for sharks at IOTC to date.

Especially silky sharks (*Carcharhinus falciformis*, globally vulnerable) and juvenile oceanic whitetip sharks (*Carcharhinus longimanus*, globally critically endangered) are impacted as a bycatch in the industrial purse seine fleets as these sharks tend to aggregate under floating objects as juveniles together with juvenile yellowfin tuna and other species. Bonnini<sup>ii</sup> showed in 2020 that silky sharks spend only around 30% of time away from DFADs. They are therefore highly vulnerable to being caught as a bycatch by purse seine fleets setting on drifting fish aggregating devices (DFADs).

Despite the requirements of Resolution 19/02 the design of most DFADs still includes materials causing entanglement, accounting for an estimated unobserved mortality of 480,000 - 960,000 silky sharks per year in the Indian Ocean alone (Filmlalter 2013)<sup>iii</sup>.

As more than 40% of global tuna catches occur around DFADs the bycatch of silky sharks is by far the most significant ETP species bycatch, accounting for up to 1% of weight of the total catch and constituting 90% of the elasmobranch bycatch in tropical tuna purse-seine fisheries (Poisson 2014)<sup>iv</sup>. Depending whether best practices are applied by the crew and technical measures exist on board to improve bycatch release the combined total mortality of juvenile silky sharks from on board mortality and post release mortality ranges between 60% and 95% (Hutchinson 2015; Eddy 2016; Onandia 2021)<sup>v; vi; vii</sup> but remains overall substantial. Survival chances of silky sharks to the age of one year have thus been estimated to be as low as 29%, while chances to reach an age of two or even three years are only 9% and 3%, respectively. (Filmlalter 2013)<sup>iii</sup>. Although technical bycatch mitigation measures do exist to reduce on-board mortality and to increase post-release survival rate, they have to date been installed only by very few vessels.

Reported discards of up to 1,000 tonnes or approx. 50,000 juvenile silky sharks by only 28 MSC certified vessels for 2014 – 2018 already exceed previously reported claims of low interactions with purse seine fisheries (Garcia & Herrera 2018)<sup>viii</sup> by a factor of two to four and despite poor overall compliance with reporting requirements for discards, the numbers reported in national reports and 1DI forms indicate that about 100,000 animals per year are a more realistic assumption (Ziegler 2022)<sup>ix</sup>.

**SHARKPROJECT** has therefore been calling for immediate improvements in the construction and management of DFADs, specifically to

- prohibit the use of all netting and meshed materials in the construction of DFADs to ensure these are lifetime non-entangling and do not contribute to unobserved mortality from ghost fishing and enforce that all other constructions will be removed from the water
- require the use of only biodegradable materials in DFAD constructions to reduce marine litter caused by non-biodegradable materials (plastics) when DFADs are lost or abandoned at sea
- limit numbers of deployed DFADs and require near real time monitoring of all DFADs while in the water
- establish lifetime management and retrieval policies
- define spatial and time closures for DFADs applying best scientific advice

- implement avoidance and release practices for bycatch species by continued research and apply technical measures, as well as the use of best handling practices, to reduce bycatch mortality
- define total mortality limits and establish bycatch reduction targets for all species impacted by purse seine fisheries

**Sharkproject therefore, supports the [IOTC-2023-SS6-PropD\[E\]](#) proposal** submitted by Kenya et al “*on management of drifting fish aggregating devices (DFADs) in the IOTC area of competence*” requesting a DFAD Register and DFAD Limits, DFAD Management and DFAD Management Plans, a DFAD Closure Period of 3 months every year, a DFAD Monitoring System, the Recovery and Reporting of Lost, Discarded and Abandoned DFADs, the use of Non-entangling and Biodegradable DFADs, DFAD Marking, and a limit of Purse Seine Vessels, Supply and Support Vessels.

**We urge the Commission** to adopt the proposed measures for DFADs at the upcoming meeting and finally move ahead to implement effective management measures for this widely used fishing practice that so far lacks adequate management in the Indian Ocean, let alone can be considered compatible with an ecosystem-based fisheries management approach.

An effective management of DFADs is urgently required to start rebuilding of the overfished stock of yellowfin tuna in the Indian Ocean, but we equally **hope to see effective measures for sharks being included** in such new Resolution at the upcoming Special Session in line with the objective of the IOTC Agreement, to minimize “the level of bycatch”, which is also recalled in proposal [IOTC-2023-SS6-PropB\[E\]](#) “*on a precautionary prohibition on the use of drifting fish aggregating devices (DFADs) in the IOTC area*” submitted by India.

Bycatch avoidance and mortality reduction are essential objectives to stop the further decline of populations of threatened sharks and rays and to provide a realistic chance for the rebuilding of possibly overfished stocks of silky sharks, oceanic whitetip sharks and other ETP bycatch species.

#### Contact:

Dr. Iris Ziegler

International Cooperation

[i.ziegler@sharkproject.org](mailto:i.ziegler@sharkproject.org)

SHARKPROJECT International

An international initiative for the conservation of sharks and the marine ecosystems

SHARKPROJECT International is a marine conservation NGO focusing on healthy marine ecosystems and healthy shark populations, as a ‘conditio sine qua non’ for healthy oceans that contribute to combatting climate change and provide food supplies for this and future generations.

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- ii Bonnin C. Dagorn, L., et al. Can drifting objects drive the movements of a vulnerable pelagic shark? *Aquatic Conserv: Mar Freshw Ecosyst.* 2021; 31: 74– 82. <https://doi.org/10.1002/aqc.3420>
- iii Filmlalter. J.D. Capello. M Deneubourg. J.L. Cowley. P.D. and Dagorn. L. 2013. Looking behind the curtain: quantifying massive shark mortality in fish aggregating devices. *Frontiers in Ecology and the Environment* 11(6): 291-296.
- iv Poisson, Francois & Filmlalter, John & Vernet, Anne-Lise & Dagorn, Laurent. (2014). Mortality rate of silky sharks (*Carcharhinus falciformis*) caught in the tropical tuna purse seine fishery in the Indian Ocean. *Canadian Journal of Fisheries and Aquatic Sciences*. 71. 10.1139/cjfas-2013-0561
- v Hutchinson. M. Itano. D. Muir. J. Leroy. B. Holland. K. 2015. Post-release survival of juvenile silky sharks captured in tropical tuna purse seine fishery. *Marine Ecology Progress Series*. 521: 143-154.
- vi Eddy. F. Brill. R. Bernal. D. 2016. Rates of at-vessel mortality and post-release survival of pelagic sharks captured with tuna purse seines around drifting fish aggregating devices (FADs) in the equatorial eastern Pacific Ocean. *Fish. Res.* 174: 109–117
- vii Onandia Inigo, Maitane Grande, José Maria Galaz, Jon Uranga, Nerea Lezama-Ochoa, Jefferson Murua, Jon Ruiz, Igor Arregui, Hilario Murua, Josu Santiago. New assessment on accidentally captured silky shark post-release survival in the Indian Ocean tuna purse seine fishery. IOTC-2021-WPEB17(DP)-13\_Rev1
- viii Garcia A. and Herrera M. 2018. Assessing the Contribution of purse seine fisheries to overall levels of bycatch in the Indian Ocean. IOTC-2018-WPDCS14-26\_Rev1
- ix Ziegler I., 2022, Assessing the impact of drifting FADs on silky shark mortality in the Indian Ocean, IOTC-2022-WGFAD03-10-Rev1 <https://iotc.org/documents/WGFAD/03/10>