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Limiting FAD Sets or FAD numbers – how these options compare

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Introduction

Effective and sustainable management of fish aggregating devices (FADs) is critical to securing the long-term sustainability of tuna fisheries within the IOTC Area of Competence. There are two designs of FADs, "anchored" and "drifting". Anchored FAD (aFAD) designs are only deployed and managed in national waters with the intention of helping small scale fisheries more effectively target pelagic species, rather than slower growing reef species that tend to be more vulnerable to overexploitation. However, drifting FADs (dFADs) are deployed on a vast scale by industrial purse seine fisheries within and beyond nations economic exclusive zones (EEZs), they have seen a 40 fold increase in abundance in some areas, have been shown to impact the entire west Indian Ocean with more than five seen per day in some locations, and they now represent over 85% of floating objects recorded in the region. Being mobile, frequently deployed on the high seas, far more negatively impactful and much more complex to manage, dFADs are the focus of this paper.

All modern dFADs used by industrial purse seiners are tracked via satellite in near real time, and most also have sonars monitoring fish abundance beneath them. Satellite transmissions from these devices inform the fishing operations of purse seine fisheries deploying and using them. Although huge volumes of data are already supplied to the fleets owning dFADs in near real time, greatly benefitting their commercial operations, much of this data is not made available to fisheries scientists, and is therefore not enabled to inform sustainable fisheries management. The purse seine industry's suggested motivation for this lack of data sharing is "commercial confidentiality", but the same lack of transparency is not accepted for VMS data on the movements of their actual vessels, although many purse seiners do display a lack of transparency in their movements anyway. Regardless of whether or not such data gaps are intentionally maintained, input controls tend to be more practical in data poor and uncertain management scenarios, while key fisheries management principles suggest application of a precautionary approach to management in such situations.

There are multiple options available for managing dFADs, but this paper assesses the relative practicality of limiting total dFAD numbers, and/or limiting the number of "FAD Sets" a vessel or fleet can make. Limiting "FAD Sets" has been trialled in other regions, where it proved to be a less practical dFAD management option. Nonetheless, some delegations which are members of the IOTC have recently suggested the application of FAD Set Limits, rather than limiting allowable FAD numbers. Current limits on the total number of dFADs each purse seine vessel is allowed to "follow" in the IOTC Area of Competence have been largely ineffective to date, mostly due to caveat language in the Regulation that only limits how many dFADs can be followed "at any time". Obviously, with remote activation and deactivation of dFADs, only managing how many dFADs are followed at any time does not necessarily limit the number of dFADs that can be deployed and used. While concerned

IOTC members are seeking to address this issue, the currently prevailing lack of operational transparency among purse seine fleets should not be used as a reason to suggest less practical methods of managing dFADs (e.g. FAD Set Limits).

SFACT is concerned to note some developed state delegations, which have industrial purse seine interests, suggesting the use of FAD Set Limits as a means of managing dFADs. These nation's purse seine fleets are clearly benefitting from the use of dFADs, while their lack of operational transparency is hamstringing efforts to monitor compliance with, or to scientifically inform, dFAD management. A prevailing inability to even manage the total number of dFADs deployed by each vessel should not justify nomination of a more complicated and data intense means of managing dFADs, in the form of FAD Set Limits. It is worth noting that the use of FAD Set limits, without limiting the total number of dFADs deployed, also does not effectively mitigate the pollution, ghost fishing and habitat damage caused by dFADs. Furthermore, actually limiting the number of dFADs deployed will limit the number dFAD Sets a vessel or fleet can make anyway. Effectively limiting dFAD numbers, not the number of dFADs followed at any time, will therefore more simply meet the objective proposed also for dFAD Set limits.

Although dFAD number limits are considered more practical than FAD Set Limits, neither of these management options will actually provide feasible management solutions until the dFAD data, received in near real time by deploying purse seine fleets, is made suitably available to management authorities. Both management options are inherently difficult to enforce and their reliance upon observer records requires Observers to play an enforcement role. This increases Observers risk of manipulation, abuse or even murder. Furthermore, Observers cannot actually be expected to effectively play such an enforcement role without access to vessel and dFAD tracking data, since research has defined that dFADs can influence and associate fishes to a distance 12NM. How is an onboard observer meant to accurately determine whether or not a purse seine set has occurred within this range of a dFAD? FAD Closures on the other hand, are easier to enforce and their implementation creates clear evidencing signals within purse seine harvest volumes per set, relative effort and harvest size and species compositions. Potential dFAD fishing effort can also be identified within vessel tracks, when they are suitably shared with authorities, while well timed and positioned closures have proven elsewhere to be the most effective measure for mitigating the overfishing of juvenile tropical tunas by purse seine fleets using dFADs. Nonetheless, mitigating dFADs ghost fishing, pollution and habitat destruction are not core objectives of dFAD closures. It is therefore a typical target elsewhere for dFAD closures to be paired with limits on the number of dFADs being deployed.

Considering all the above, also noting capacity limitations within the IOTC and its member states, SFACT suggests the IOTC does not consider implementing FAD Set Limits. Linked deliberations and potential attempts to implement these will further complicate monitoring and enforcement; while not addressing pollution, ghost fishing and other impacts associated with dFAD use. We therefore suggest the implementation of an oceanwide spatio-temporal dFAD closure of suitable length and size, paired with effective limits to the number of dFADs which can be deployed. At this juncture we remind CPCs that the relative impacts of juvenile harvests by purse seiners using dFADs is a key driver of overfishing, and one which needs to be resolved as a matter of priority. IOTC must also urgently remove the caveat language of only limiting how many dFADs a vessel can "follow at any time" so it has a chance of truly meeting the intent of limiting how many dFADs are deployed and damaging marine ecosystems.

FAD set limits were an option for FAD management in the WCPFC for several years, however they were considered ineffective and removed as a management option due to difficulties including the ability to monitor and enforce the limits. Given that the ability to monitor and enforce the use of FADs is even weaker in IOTC waters (no centralised VMS, no regional observer program, no sharing of data, few CPCs submitting data on FAD use) and that no clear definition of a FAD set has yet been adopted, SFACT is of the view that it would not be wise for the IOTC to pursue this measure. Not only would it be nearly impossible to monitor and enforce FAD set limits with the data that is currently made accessible to fisheries managers, but the necessary rigour needed for science-based limits would also be lacking.

Conclusion

The above suggestions should link with requirements to share the data necessary to better inform and monitor fisheries management. This data is already being received in near real time and retained by industrial purse seine fleets operating within the Indian Ocean. We consider the purse seine industries claims of “commercial confidentiality” to be invalid when the same vessels deploying and using dFADs are already expected to share their vessel monitoring (VMS) data to enable and inform sustainable management. The purse seine fishing industry should be required to suitably evidence that its use of dFADS will no longer drive unsustainable levels of bycatch, juvenile harvests, pollution , habitat damage, and likely IUU.