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Information on a project: Monitoring drifting FADs outside fishing grounds

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Submitted by the SPC-OFP¹

This paper aims to inform WCPFC CCMs of a new SPC project, which has the objective of monitoring dFADs that drift outside fishing grounds, and in areas where dFAD trajectory data are scarce or absent (e.g. north of 20°N and south of 20°S). We are also seeking interest from purse seine fishing companies in participating to the project.

1- Context

Drifting fish aggregating devices (dFADs) are a key component of the tuna purse seine fishery in the Pacific Ocean, with 46,000 to 65,000 dFAD buoys estimated to be deployed annually and 40–50% of the fishing sets conducted on dFADs (Escalle et al., 2021; Lopez et al., 2023). However, when drifting outside the common purse seine fishing grounds, dFADs may be lost and can contribute to abandoned, lost, or otherwise discarded fishing gear (ALDFG) (Escalle et al., 2023). This loss of any fishing gear is undesirable as it contributes to marine pollution and can cause environmental damage when it becomes stranded in coastal areas, such as on coral reefs.

To inform option to mitigate loss of dFADs and their potential impacts we require data on their full drift trajectories. In the purse seine fishing grounds (mostly between 10°N to 10°S), there is a growing source of dFAD tracking data available to scientists and managers, which has allowed for better knowledge regarding dFAD fate, stranding events and areas where positional data is unavailable (Escalle et al., 2023; Lopez et al., 2022). More recently, some management measures also require dFAD buoys to continue to transmit positional data outside the vessel/companies primary fishing grounds (PNA 4th IA: 20°S to 20°N). While this will improve data availability, there remains a lack of information regarding the fate of dFADs over their entire life and the number of dFADs that continue to transmit positional data outside the fishing grounds remains low. A recent study, using simulated dFAD trajectories highlighted that the highest areas of dFAD loss from the Pacific fishing grounds are in the Western and Central Pacific Ocean, north of the Federated States of Micronesia and Republic of the Marshall Islands and south of the Solomon Islands and Fiji (Scutt Phillips et al., submitted). These results need to be validated using real data and the fate of dFADs that pass through these corridors of loss needs to be further investigated with real observations.

¹ Oceanic Fisheries Programme of the Pacific Community

2- The project

The project has the objective of monitoring dFADs outside fishing grounds, in areas where dFAD trajectories are scarce or absent (north of 20°N and south of 20°S). DFAD buoys drifting into areas defined between SPC and partner fishing companies (see blue area in Figure 1 as an example) would be considered candidates for the project. If they enter the project, the identified individual dFAD deployments at sea and activated instrumented buoys would be transferred to SPC, who will continue to monitor them for a minimum of a further 12 months, or until signal loss.

The overall objective of the project is to gain knowledge of dFADs outside fishing grounds, including duration drifting, fate, and potential return to fishing grounds. Such information will be key to guide the development of management or mitigation measure for the sustainable use of dFADs, in particular recovery programs and the development of guidelines linked to buoy monitoring requirements. Data from the project will also be used to validate trends detected in simulations, and potentially improve these simulation tools (Scutt Phillips et al., submitted). Additionally, the project will include data from echosounder buoys, providing information related to fish behaviour and presence outside the main fishing grounds and provide a proof of concept for a potential project to develop abundance indices to support stock assessments. Data collected could also be used to feed into oceanographic models.

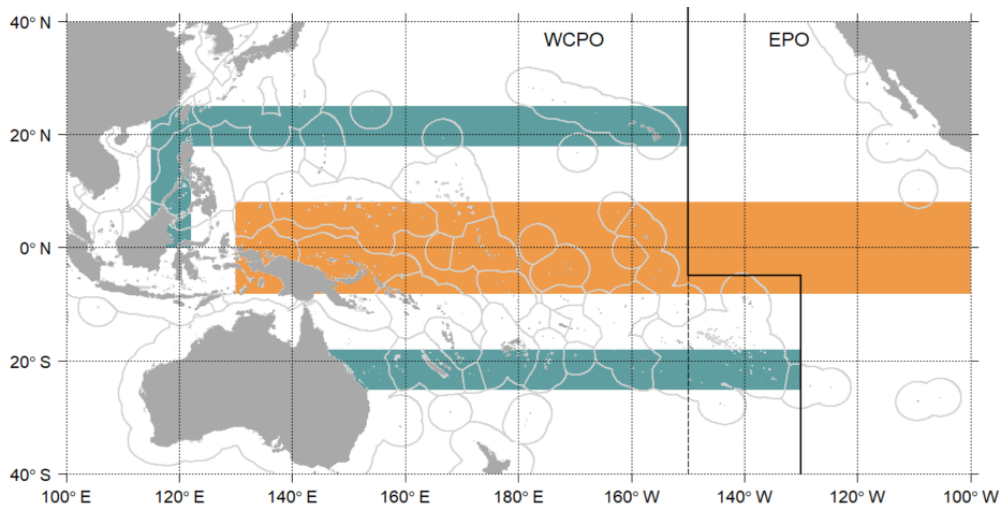


Figure 1. Areas of common signal loss in the WCPO (blue) and main purse seine fishing grounds (orange).

3- Participating fishing companies

Fishing companies interested in participating can contact SPC (laurianee@spc.int) for more details.

The framework for monitoring buoys that are still drifting at the edge of fishing grounds is proposed as follow:

- Buoys reaching the areas of common signal loss defined in Figure 1 are identified. The dFAD deployment and buoy monitoring is transferred to SPC, and only SPC will have access to position and echosounder data in real time. The partner fishing company will no longer be monitoring the buoy but remains the legal owner of the buoy and dFAD. The cost of satellite transmission fees is shared between SPC and partner fishing companies (as a financial contribution to the project).
- Buoys would transmit position information and echosounder in real time to SPC, through buoy manufacturer softwares.

- The whole trajectory of the buoys from initial deployment is made available by the participating company to SPC (before date of entry in the project and arrival in blue areas in Figure 1), the provision of this data would be expected after 6 months from project start.
- Information related to the design and materials of the dFAD, are made available by the participating company to SPC.
- The buoy is monitored for a minimum of 12 months by SPC, or until the signal is lost or the buoy becomes stranded.
- SPC informs any CCMs of buoys drifting in their waters and if buoys strand in an area where SPC has local partners working on stranding dFAD data collection effort, and if retrieval is possible, the buoy and dFAD could be recovered (at SPC or their local partners' own cost).

Acknowledgement

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