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Title:	Anchored fish aggregating devices – an update on current and proposed activities
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Summary/short description/key points:

The purpose of this paper is to inform the 13th Heads of Fisheries Meeting (HoF13) on the work conducted by FAME to develop and support national programmes on anchored fish aggregating devices (a-FADs).

The paper is a progress report to HoF13 on two domains of action identified at HoF12: the need for assistance with a-FAD deployment, and improving data collection tools to monitor the effectiveness of a-FAD programmes.

Despite COVID-19 related travel constraints, capacity development activities to support these needs have been delivered through remote training. This report details the capacity development and support that has been provided and discusses new fishing techniques to target underutilised small pelagic species

Members are invited to:

- Note the progress to date on developing and supporting anchored FAD work in the region.
- Advise FAME on priority support needs to assist/enhance national anchored FAD strategies, capacity, and monitoring (catch, effort, socio-economic benefits).
- Provide preliminary feedback on new and complementary initiatives such as the use of GPS trackers and/or acoustic buoys attached to anchored FADs and new fishing technologies targeting underutilised small pelagic resources.

Introduction

1. Anchored fish aggregating devices (a-FADs) are a method for enhancing nearshore artisanal fishing opportunities and food supply for local communities. They have been operational throughout Pacific Island countries and territories (PICTs) since the 1980s. During this period, the Pacific Community (SPC), in collaboration with national fisheries agencies and non-governmental organisations, has supported member countries and territories with capacity building in all aspects of a-FADs, producing [six FAD manuals](#) to date, with the first manual released in 1984. These manuals cover a-FAD designs, planning, assembling, deploying, maintenance and monitoring, with each successive manual incorporating new information from lessons learned and technical improvements.
2. To enhance the effectiveness of a-FAD fishing, and nearshore fishing in general, SPC has produced and distributed awareness materials on safety at sea, fishing techniques (e.g. trolling, deep bottom fishing, mid-water fishing, vertical and horizontal longlining, and night fishing) and post-harvest treatment of catches, including on-board handling of sashimi grade tuna. All awareness materials have been supported with hands-on training.
3. The 12th Heads of Fisheries (HoF) meeting in May 2020 identified the need for assistance with a-FAD deployment, and improving data collection tools to monitor the effectiveness of a-FAD programmes. Under COVID-19 related travel constraints, capacity development to support these needs has been delivered through remote training. Importantly, any capacity development in support of a-FAD programmes should ideally be embedded within the CBFM programmes currently being implemented across the region to maximise the integration of overall outcomes for communities.

Activities Implemented (under COVID-19 travel restrictions)

Strategic approach

4. SPC continues to provide advisory and technical support to countries and territories in developing national a-FAD programmes, with the overall objective of creating sustainable a-FAD programmes with tangible long-term benefits to communities. Key to achieving this objective is to secure recurrent national funding and adequate investment in capacity (i.e., staff and equipment). Real-time monitoring of all aspects of an a-FAD programme is necessary to ensure outcomes fulfil the economic, social and food security objectives without imposing an undue burden on communities.

Capacity building and awareness

5. SPC has developed the theoretical and practical content and delivered virtual a-FAD training workshops that can be adjusted for a range of participants, from experienced fisheries staff, individuals from the private sector and civil society groups, to community fishers. The workshop materials are designed to offer learnings to both inexperienced and experienced participants, including government, municipal officers, and traditional leaders who can benefit by understanding what is required for a-FAD programmes, deployment, monitoring and management to be successful.

6. The purpose of the training materials is to build and expand capacity to implement and manage an a-FAD programme. Modules include, a-FAD stakeholder consultations, site surveys, material procurement, construction, deployment, maintenance, and monitoring. Specific content can be adjusted according to individual country or territory requirements.
7. As part of SPC's commitment to boosting remote learning capacity, a series of seven short awareness and training videos on a-FAD fabrication and deployment have also been produced with the support of the New Caledonian fisheries authorities. These seven videos can be found here: [YouTube Playlist](#)

Monitoring

8. SPC has developed mobile and tablet application tools such as [TAILs](#) and more recently [IKASAVEA](#), respectively. Both tools are available for members to use to assist with monitoring a-FAD and non-FAD fishing trips (e.g., catch and effort, species, length and weight) and to record a detailed FAD registry (FAD materials, position, depth, construction etc).
9. Eight countries are currently conducting regular landing surveys that include a-FAD catch and effort related data. These are complemented by occasional ad hoc socio-economic surveys at specific sites to assess the impact of a-FADs. Community members have been trained to use the apps in two PICTs.

Activities in progress

Strategic approach

10. To maximise the value and benefits of a-FADs for both food security and livelihoods opportunities, member countries and territories need to ensure they have an appropriately established, endorsed, and funded FAD Programme. While there are currently several national a-FAD related plans and strategies in various stages of development across the region, only few have been officially endorsed. SPC, as a focal point for providing coastal fisheries technical and management advice to its members, has been providing a common structure for member countries and territories through policy support and the production of manuals and related training programmes that reflect the practical a-FAD programme requirements communicated to SPC by its members.
11. Importantly, SPC recognises that the well-being of Pacific Island communities is paramount and continues to support safety-at-sea for small crafts through the promotion of safety grab bags, review of small craft legislations, implementation of a small craft safety component in small fishing operations (SFO) training and by responding to small craft related safety issues.

Capacity building and awareness

12. Several a-FAD practitioners in the region have encountered challenges with building and deploying a-FADs. Typical issues include calculating the lengths of the various rope types and sizes, hardware specifications (chain, shackles, swivels) and the floatation required for the intended a-FAD site depths. To address this, SPC is developing an interactive web-based tool for a-FAD practitioners that will enable the calculation of rope lengths for various rope types, the

volume of the flotation system, the size and type of metal hardware, and the types and weights of anchors for the various a-FAD designs and intended deployment sites and depths.

13. SPC is also producing a manual of nearshore fishing methods that encompasses many techniques that primarily target nearshore pelagic species. The manual will also include additional fishing methods to target species that are not regularly fished for food in the region, e.g., diamondback and loligo squid and small pelagic fish such as mackerel scads and flying fish. This manual will be completed by mid-2021 and will be supported over the next year by a series of awareness and training videos demonstrating a selection of the fishing methods in the manual.
14. In addition to the existing a-FAD information and awareness materials (e.g., posters, [Policy Brief # 19](#) and [Policy Brief 31](#), SPC is producing an awareness toolkit (“FADs are for family”) in order to raise awareness about a-FADs, their benefits and best practices, and to encourage support for a-FAD programmes. This toolkit will be developed in partnership with Nauru but will be available for other countries and territories.

Monitoring

15. There are limited data available on catches, effort, and the socio-economic benefits of a-FADs. This information is central for undertaking cost-benefit analyses. Such analyses are needed to demonstrate the economic and social benefits of a-FAD programmes. Without evidence of positive outcomes, it will be difficult to build an argument for sustained funding and government staff commitments to long-term a-FAD programmes.
16. Existing a-FAD data collection varies in quality, quantity, and longevity across the region. While some countries and territories have mature a-FAD data collection programmes in place, others have limited or no data collection occurring. However, even the mature data collection programmes have problems with fishers’ negative or indifferent perceptions of data collection. More work is needed within fisheries and other government agencies, as well as with fishers and coastal communities, if robust national and Pacific-wide data collection programmes for a-FADs are to be realised.
17. SPC plans to conduct an analysis of all available data on a-FAD fishing activities and deployments held by SPC to identify information gaps and to guide the development of a practical best-practice approach for monitoring and evaluating the socio-economic performance of a-FADs in the Pacific islands’ context.

New and complementary initiatives

18. Through collaboration with SPC’s Geoscience, Energy and Maritime Division, and the French Institute of Research for Development (IRD), a weather buoy is now attached to one of the Noumea a-FADs that provides wave data and tracking of a-FAD position. SPC plans to trial the use of acoustic buoys or GPS tracking devices on some a-FAD deployments to explore the value the technology may add for a-FAD users and programmes. Acoustic buoys may increase our understanding of fish–FAD interactions. GPS tracking devices can inform fishers of the a-FAD’s location and provides location information should an a-FAD break loose from its anchor. The

cost effectiveness of these buoys and/or GPS trackers will be explored, and advice provided to members.

19. SPC is exploring alternative small-scale fishing methods and technologies to catch small pelagic fish (e.g., anchovies, sprats, fusiliers, sardinella, herrings). These are underutilised, or in some cases, untapped resources. These species can be targeted with night fishing methods using lights with lift-nets. The objective will be to scale down the methods used by larger boats, to be applicable and appropriate for the types of boats used by many small-scale fishers in PICTs (i.e., 6 to 9 meters). The sustainability of these small-scale fishing methods will be explored, and advice and training provided to members.
20. Members are invited to:
 - Note the progress to date on developing and supporting anchored FAD work in the region.
 - Advise FAME on priority support needs to assist/enhance national anchored FAD strategies, capacity, and monitoring (catch, effort, socio-economic benefits).
 - Provide preliminary feedback on new and complementary initiatives such as the use of GPS trackers and/or acoustic buoys attached to anchored FADs and new fishing technologies targeting underutilised small pelagic resources.