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In-country initiatives to collect data on beached and lost drifting FADs, towards a regional database of in-situ data

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Executive Summary

Drifting Fish Aggregating Devices (dFADs) are increasingly reaching coastal areas where they can become stranded, adding to pollution and/or causing environmental damage. To quantify these events and their impacts, several Pacific Island Countries and Territories (PICTs), in collaboration with the Pacific Community (SPC) and international Non-Governmental Organisations (NGOs) have started programmes to collect in-situ data.

This year, data collection programmes on lost dFADs reaching coastal waters and on beached dFADs have started in the Cook Islands and Wallis and Futuna; and are under development in French Polynesia, Federated States of Micronesia and Republic of the Marshall Islands. These programmes involve local communities reporting their findings to fisheries officers, who enter data on forms and in their country/territory database. Data can also be collected through existing SPC data collection networks within a community-based fisheries management framework. Data are then transferred to SPC, who compiles all the data into a regional database. Each programme is based on local community engagement and therefore communication is essential. This involves different means, such as posters, radio and TV broadcasts, and public conferences. The development of systematic data collection programmes on beached and lost dFADs must remain as simple and efficient as possible.

When possible, data collected should include date, location, environment, materials and size of the dFAD, its fate (e.g., removed, left where it was found, fished), the buoy identification number and any other painted marks on the buoy, as well as any environmental impacts (coral reef damage or entanglement of sensitive species). In Wallis and Futuna, and the Cook Islands, respectively 106 and 56 dFADs and/or satellite buoys found beached or drifting nearshore have been reported, with 25% of these corresponding to new findings since the beginning of the year.

In parallel, other initiatives or opportunistic reports have emerged. This includes data collection in Palmyra Atoll since 2009, where a total of 41 dFADs and/or satellite buoys have been found. Opportunistic data collection has also been reported to SPC since 2018, including through SPC's existing data collection networks. This includes an additional 45 records, mostly from 2019 and 2020, from Australia; Cook Islands (before the implementation of the data collection program); New Caledonia; Pitcairn Islands; Samoa; Tuvalu; and Vanuatu.

The data currently available to quantify beached dFADs have been shown to under-estimate total numbers (given frequent deactivation of dFAD when drifting outside main fishing areas) and do not present any information regarding ecosystem impacts. Hence, in-situ data collection is important to complement fisheries data. Additional countries and territories may therefore wish to consider implementing a data collection programme and participate in this regional initiative. While such programmes present challenges, in particular for PICTs with a high number of outer islands, it can be started in specific areas initially. Relevant quantification of dFAD beaching or drifting nearshore events, as well as assessment of resulting ecosystem impacts, will be possible through data collection over several years and covering the largest area possible, and will help guide management of dFADs in the WCPO.

We invite WCPFC-SC16 to:

- Highlight the need for in-situ data to be collected to better quantify beaching events and the impacts of dFADs on marine ecosystems.
- Note the development and progress of in country data collection programmes on beached and lost dFADs nearshore, as well as of a regional database.
- Encourage its extension to other members of WCPFC.

1. Introduction

Several Pacific Island Countries and Territories (PICTs), together with regional entities (e.g., Parties to the Nauru Agreement (PNA)) as well as international Non-Governmental Organisations (NGOs), have raised concerns regarding the number of drifting Fish Aggregating Devices (dFADs) reaching coastal areas, including coastlines, where these fishing devices become stranded. This not only contributes to coastline debris but also damages fragile habitats such as coral reefs and can entangle turtles and sharks (Balderson and Martin, 2015; Escalle et al., 2019b).

Concern over beached dFADs has intensified in recent years due to a general feeling of an increasing trend in beaching events, including in PICTs with no purse seine activities; and by a lack of solutions to process/recycle these objects on remote islands. However, the number of studies investigating beaching events in the Western and Central Pacific Ocean (WCPO) remains limited. This is largely due to the absence of data available to adequately quantify the number of dFADs arriving on coastal areas, beaching events, and impacts on the ecosystem. A recent study, based on trajectories from satellite buoys deployed on dFADs (i.e., PNA dFAD tracking data, see Escalle et al., (2020)), estimated that 7% of dFADs end up beached in the WCPO, with some areas influenced by oceanic currents and others linked to dFAD deployment strategy (Escalle et al., 2019b). Based on results from Escalle et al. (2019a), it was recently estimated that 4 to 6 km^2 of coral reef habitat could be affected per year in PNA countries (Banks and Zaharia, 2020). The number of beaching events and level of ecosystem impacts are very likely under-estimated, given that the current dataset corresponds mostly to data from PNA member EEZs, but also because satellite buoys are commonly deactivated by fishers when drifting outside the main fishing areas.

In the WCPO, dFAD management has primarily focused on limiting dFAD fishing efforts and the impact that dFAD fishing may have on tuna stocks. This included the implementation from 2009 of a two to four month dFAD closure during which all dFAD-related activities (e.g., fishing, deploying, servicing) are prohibited, as well as a limit of 350 active buoys per vessel, at any given time, in 2018 (WCPFC, 2018), which may not limit the overall number of dFADs deployed (as buoys may be deployed on dFAD found in the water). More recently, in an effort to reduce the impact of dFADs on sensitive species such as turtles and sharks, and to reduce marine pollution, mandatory use of low entanglement risk dFADs was implemented in 2020 and the use of biodegradable dFADs encouraged (WCPFC, 2018).

This paper presents initiatives started or under-development by PICTs and in collaboration with SPC and NGOs to collect data on lost dFADs reaching coastal areas and/or beached, as well as the impacts of these events on ecosystems. Data collection is carried out and stored individually in each PICT, a regional database with data from all PICTs is then compiled at SPC, allowing for future scientific studies to be performed at the scale of the WCPO, and ground-truthing of existing estimates.

2. In-country initiatives to collect data

2.1 Collaborations with SPC

In the context mentioned above of increasing frequency of the arrival of dFADs in coastal areas, as well as the need to collect in-situ data to complement available data on dFADs (PNA dFAD tracking and observer data); data collection programmes have started or are in development, as a collaboration between fisheries departments, SPC and NGOs.

Data collection programmes started at the beginning of this year in the Cook Islands and Wallis and Futuna, along with the distribution of local communication support (posters, see Appendices). We note here that purse seine activity is moderate in the Cook Islands but does not take place in Wallis and Futuna waters, as their EEZ is south of traditional purse seine fishing grounds and there are no purse seine vessels licenced to fish there. Initial communications around the data collection programme to the general public (e.g., posters, radio and TV broadcasts, presentations) aim to raise awareness of the issue and data collection processes. Subsequently, fisheries departments are contacted by the public to report the findings of dFADs and/or satellite buoys. Reports may include very detailed descriptions or just basic information. Priority has been given to collect as much data as possible on beaching or nearshore drifting of dFADs, as well as the satellite buoy number. However, data that could be collected include date, location, environment, materials and size of the dFAD and its fate (e.g., left where it was found, retrieved, fished). The buoy identification number as well as any other markings painted on the buoy are very important to potentially identify the origin of the dFAD. Finally, any impacts on the environment, such as coral reef damage or entanglement of sensitive species, are also recorded. To encourage reporting, a single email or call to fisheries departments is all that is required; fisheries officers are then in charge of completing a form (see Appendices) corresponding to the description given and answers provided to their questions. Data are then entered in a Google Drive spreadsheet, only accessible by the fisheries officers in the related PICT and SPC.

For the first few months of the program (February to May), reports included dFADs and satellite buoys newly beached or drifting in coastal waters, but also an inventory of dFADs and buoys previously picked up by the public. Indeed, this is important to create a baseline inventory and better capture and identify new events. For this first inventory record, any information is relevant, even if the precise date/location is unknown, as it gives an idea of common levels of dFADs that have historically arrived. If the buoy ID is recorded, this will assist in cross referencing with other databases (e.g., observer data, PNA dFAD tracking data) to avoid duplication and ensure a reliable representation of database records.

In Wallis and Futuna, and the Cook Islands, 106 and 56 reports of dFADs and/or satellite buoys found beached or drifting nearshore have been made (Table 1, Figure 1). Around 25% of these corresponded to new findings of dFADs and/or buoys since the beginning of the year (versus an inventory of findings made in previous years). Note that the numbers presented here are not representative of full coverage. In particular in the Cook Islands, all islands have not received the communication support yet and therefore have not started collecting data.

The development of a data collection awareness programme was also due to commence in 2020 in the Federated States of Micronesia (FSM) and the Republic of Marshall Islands (RMI), but the onset of COVID-19 has slowed progress. In addition to an English version, posters have also been translated into 5 languages in FSM and into Marshallese in RMI. They will be printed in the coming months for distribution, followed by the start of data collection soon thereafter. Outer island communities regularly find FADs and keep satellite buoys. One potential initiative for these isolated communities is to associate the data collection programme with learning ways of re-using and recycling FAD and buoy materials for their own use.

French Polynesia has also started a large project to quantify the number of dFADs drifting within its EEZ, including the number of beached dFADs and their ecosystem impacts. Contrary to other PICTs involved in such project, French Polynesia is implementing a data collection programme with a form that will be directly downloaded or filled up on the marine resources authority's website (www. ressources-marines.gov.pf).

2.2 Other initiatives

At Palmyra Atoll, The Nature Conservancy (TNC) and the U.S. Fish and Wildlife Service (USFWS) have been collecting data on dFAD strandings since 2009. Visual survey's across shallow reefs, lagoon flats and beaches have been opportunistically tied in with other projects but now that consistent stranding areas have been established specific surveys are being scheduled across all 12 months of the year. A total of 41 dFADs and/or satellite buoys have been found (Table 1, Figure 2). Designs of the dFADs found, and type of materials used are described, as well as the impacts on the environment. When a satellite buoy was present and the identification number visible, it has also been recorded. A dFAD Watch type program (Zudaire et al., 2018) is also currently under development at Palmyra Atoll. This would involve fishing companies alerting local partners if a dFAD comes close to Palmyra Atoll's shores, so that it can be picked up before causing any environmental damages.

Table 1. Number of dFADs and satellite buoys found beached or drifting nearshore per Pacific Island Country and Territory involved in the project so far.

	Total	dFAD & buoy	buoy only	dFAD only	Found at-sea or coastline in 2020
Wallis and Futuna	106	19	58	29	26
Cook Islands	56	7	35	14	12
Palmyra	41	12	16	13	1

In parallel to the development of systematic data collection on beached and lost dFADs, opportunistic data collection has also been done for several years and reports have been made to SPC since 2018. These data include reports made by existing SPC data collection networks (i.e., Tails[1] data collector reporting FADs found in outer island areas). An additional 45 records, mostly from 2019 and 2020, have been made for Australia; the Cook Islands; New Caledonia; Pitcairn Islands; Samoa; Tuvalu; and Vanuatu.

2.3 Lessons learnt

The data collection programs on beached and lost dFADs started in 2019 and is fully implemented in just two PICTs to date: Cook Islands and Wallis and Futuna. There is additionally an independent longer-term initiative at Palmyra Atoll. However, given the current development of similar initiatives in French Polynesia, FSM and RMI, as well as other PICTs in the future, some lessons learnt, and challenges faced can already be summarized. Factors influencing the success of the program, especially in terms of data reporting, as well as how the contribution was made, are described in Table 2.

[1] Tails is a mobile and tablet application (https://play.google.com/store/apps/details?id=spc.ofp.tails&hl=en) that collects fishing logbook data from artisanal and small-scale fishers. The data collected in Tails is used by Pacific countries for fisheries management and scientific analyses and is a critical source of data in a fishery that is usually data-poor.

Table 2. Factors influencing the success of the data collection programs and the challenges faced.

Type	What?	How?
Success	In-country motivation and fishery department involvement. Good knowledge of dFADs, their design and potential impacts.	- A focal person in the fishery department in charge of collecting and entering data. - Frequent email/Skype exchanges or SPC staff visiting at the beginning of the programme and regular updates afterwards.
Success	Significant inclusion of local communities: knowledge of the programme and understanding its objectives and its importance for them.	- Various communication means: posters in English and local languages and dialects, comics, radio and newspaper messages, TV broadcast. Good relationship between fisheries departments and fishermen/ population and public meetings. - Local visit by SPC staff, public presentation.
Success	Centralisation and homogenisation of consistent data collection.	- A form filled in by fisheries officers upon report from the community (Appendices). Depending on the PICT, data collection protocols (e.g., form) could be adapted so it can be used by artisanal fisherman's, community-based groups, NGOs, fishing companies and opportunistic data collectors. - Precise description of the data fields (Appendices). - Hosting the form and pictures on Google Drive for easy access and sharing.
Success	Follow-up communications with the general public.	- Communication of results (e.g., presentation, small articles) to the general public, so they can see the results of their efforts and how things are developing.
Challenges	Including outer Islands in the program (communication data transfer, etc.).	
Challenges	Accuracy of found dates and found locations.	

3. Next steps

This paper presents an in-country data collection programme related to dFADs found in coastal waters and coastlines, as well as the development of a regional database. As mentioned above, the first PICTs included in the project are only in their first year, and several others are currently in the early stages of implementation. Initial results presented here indicate the potential for a relatively high number of reports to be made annually. In addition, the data collected will allow comparison with existing dFAD-related databases in the WCPO (e.g., observer data, PNA dFAD tracking data), but also in the EPO as currents usually bring dFADs East to West. This could help identify the origin (deploying vessel) and life history of dFADs (area and date of deployment, drift and/or fishing performed on dFADs). In addition, this would complement data already collected on beaching events (i.e., PNA FAD tracking data, see Escalle et al. (2020)) that currently under-estimates beaching rates. Under estimation can not be excluded with in-situ data as well, with not all the records being reported. However, communication and involvement of a large portion of the public, including fishermen, could help increase reporting.

Data collection and transfer are currently made via a paper form and Google Drive spreadsheet. With the likely increase in reporting and PICTs involvement in the project, the use of an app could be considered (potentially through Tails, and/or through the PNA FAD logsheet application with a specific section related to data collected in the coastal environment), however challenges may emerge as data will be collected on coastal area but related to dFADs, which are used by industrial fishers in oceanic waters. Data homogenisation will therefore be needed between coastal and oceanic data collection efforts. This could be facilitated through a coastal and oceanic joint subcommittee on the Tuna Data Collection Committee, which would identify key priority areas for dFADs on data standards and communicate these to SPC members. The Tails network of data collectors currently submit ad hoc reports on washed up dFADs to SPC via existing communications protocols. In the future, dFAD beaching officers or coordinators may be needed to deal with the amount of data received.

Other independent initiatives may also be occurring throughout the WCPO. In oceanic waters, some fishing companies likely collect lost or abandoned drifting FADs from other fleets and store them in port storage areas to be returned or traded back to company owner. Such collaboration between companies (with or without fees upon retrieval), as well as recovery programs before dFADs reach coastal areas will also help reduce the environmental impact of dFADs.

Additional countries and territories could consider implementing a data collection programme and participation in this regional initiative. Relevant quantification of dFAD beaching or drifting nearshore, as well as assessment of ecosystem impacts will be possible through data collection over several years and covering the largest area possible (including countries and territories with low or no purse seine effort). Although the WCPFC is currently moving forward in terms of non-entangling and biodegradable dFADs, such designs can still have an impact on the environment, making this programme relevant and timely. This could ultimately help inform management of purse seine fishery on dFADs in the WCPO.

We invite WCPFC-SC16 to:

- Highlight the need for in-situ data to be collected to better quantify beaching events and the impacts of dFADs on marine ecosystems.
- Note the development and progress of in country data collection programmes on beached and lost dFADs nearshore, as well as of a regional database.
- Encourage its extension to other members of WCPFC.

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of the year or in the future. The authors are also grateful for any opportunistic report transferred, including findings in Australia; Cook Islands; New Caledonia (Association Hô-üt); Pitcairn Islands (The Pew Charitable Trusts); Samoa; Tuvalu; and Vanuatu. We thank Naiten Bradley Phillip Jr., Marino-O-Te-Au Wichman, Berry Muller and Sam McKechnie for valuable comments on an earlier version of the paper.

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Figure 1. Pictures of some dFAD rafts and submerged appendages and satellite buoys found in Wallis and Futuna since March 2020.

Figure 2. Pictures of some dFAD rafts and submerged appendages and satellite buoys found at Palmyra Atoll since 2009.

Appendices

- Description of data collection for dFADs found beached or at-sea
- Poster presenting the data collection program for the Cook Islands in English
- Poster presenting the data collection program for the Cook Islands in Rarotongan
- Poster presenting the data collection program for the Wallis and Futuna in French
- Data collection form for fisheries officers

Description of data collection for FADs found beached or at sea

For any information contact laurianee@spc.int

Why are we collecting these data?

We are collecting these data in order to quantify the number of lost and beached FADs, and to note their impact on coastal areas, which will help improve the management of FAD fishing. FADs are always deployed with a satellite buoy, so that fishers know the position of their FAD. FADs are usually also equipped with an echosounder to estimate the amount of tuna aggregated underneath. Fishing companies have started sharing data both of the FAD's position, as well as the echosounder data from the satellite buoys deployed on FADs. These data are used in scientific studies that guide management of FAD fishing. When FADs are found at sea or beached, it is therefore very important to record the unique buoy ID number, to potentially match of found FADs with these existing datasets.
In addition, fishers commonly remotely deactivate satellite buoys when FADs drift outside fishing areas. The dataset transmitted by fishing companies hence only gives a partial image of the FAD trajectories and the number of beaching events is underestimated in this dataset. Therefore, having access to additional information on beaching events, but also on FADs drifting in coastal areas (with the buoy ID number, if still attached to the FAD) will help complement the existing dataset and better estimate the impact that FAD may have on coastal areas.

Description of the fields in the spreadsheet

- **Entry number**
  (Internal use only. Number of FAD and/or satellite buoy found (1 to n). Used to rename the pictures.)

- **Entered by**
  Name of the person entering the data.

- **Date entered**
  Date of data entry.

- **Found by**
  Name of the person who found the FAD and/or satellite buoy.

- **Contact**
  Enter contact detail (email address, number) of the person who found the FAD and/or the satellite buoy.

- **FAD present**
  Was a FAD present (i.e., FAD by itself or FAD with a buoy)? Yes/No.

- **Buoy present**
  Was a satellite buoy present (i.e., buoy attached to a FAD or buoy by itself)? Yes/No.

- **Buoy ID number (very important if a buoy is present)**
  Enter the satellite buoy ID number, see poster for how to find it (depends on the buoy brand and model).
  Examples of satellite buoy ID number:
  DL+123456 ; **ISL**+123456 ; **DSL**+123456 ; **SLX**+123456
  M3I123456; **M3**+123456; **M4**+123456
  T07123456789; **Te7**123456789; **T7**+123456789; **T8X**123456; **F8E**123456789 ; **Z07**123456789
  P1234**NF**; **P1**234**N**; **WF**1234**N**; **CN**123**N**
  123456

- **Date found**
  Date that the FAD and/or satellite buoy was found. Could be an approximate date if not known, e.g., August 2019.

- **Location**
  In particular if the lat/lon were not recorded, note where the FAD and/or satellite buoy was found, e.g., name of beach, town, island, etc.

- **Environment (if provided or visible on the pictures)**
  Where the FAD has been found: drifting at-sea in the lagoon or the ocean, on a beach, a coral reef, a beach, a rocky shore, a mangrove; or previously found and reported from a garden, a wharf, etc.

- **Latitude and longitude (If provided)**
  Record latitude and longitude in decimal.

- **Painted marks (if provided or visible on the pictures)**
  Record any marks painted on the satellite buoy. Could be a vessel name, or the abbreviation of a vessel names, just a letter, a number, a number and a letter, and sometimes the buoy ID number.

- **Mark on the FAD (if provided or visible on the pictures)**
  Record any mark attached to the FAD or painted on it.

- **FAD condition (if provided or visible on the pictures)**
  What is the condition of the FAD when found? Intact with the submerged tail, intact without the submerged tail, beginning to break, mostly fallen apart.

- **Raft materials (if provided or visible on the pictures, can be multiple entries)**
  List all the materials making the raft of the FAD: bamboo, wood, floats, drum, net, cord, canvas, etc.

- **Tails materials (if provided or visible on the pictures, can be multiple entries)**
  List all the materials making the tail of the FAD (underwater appendages): bamboo, wood, net, cord, canvas, etc.

- **Size of the raft (if estimated)**
  Estimates of the size of the FAD raft, Length (m) x Width (m).

- **Tail length (if estimated)**
  Estimates of the length of the FAD tail, i.e., the materials (rope, net, etc.) hanging under the FAD raft (could be absent, then put 0) in meters.

- **Fate of the FAD (if provided)**
  What has been done with the FAD: removed from the water, removed from land, left drifting, left on shore, sunk, fished, etc.

- **Purpose if FAD removed**
  If the FAD has been removed from the location it was found, mention why it has been removed: avoid pollution, landfill, burned, recycled (to do what?), etc.

- **Fate of the buoy (if provided)**
  What has been done with the satellite buoy: removed from the water, removed from land, left drifting, left on shore, sunk, etc.

- **Purpose if buoy removed**
  If the buoy has been removed from the location it was found, mention why it has been removed: avoid pollution, recycling (use battery, solar panels…), etc.

- **Environmental damage (if provided or visible on the pictures)**
  Any environment damage recorded: e.g., tail of the FAD caught up on corals.

- **Entangled animals (if provided or visible on the pictures)**
  Record if any animals were found entangled on the net hanging beneath the FAD and/or the net used to cover the raft. If possible, record the species and the number of individuals.

- **Aggregated fish and/or fished (if provided)**
  Record if any fish (or other animals) were seen aggregated under the FAD and/or if any fishing was performed. If it was the case, mention the species (if know), the number and/or the catch in kg.

- **Other comments**
  Any other comments: e.g., some tuna were aggregated under the FAD, the FAD could not be removed because too heavy, materials reused as fishing gear, etc.

- **Number of pictures received**
  Record how many pictures have been received.

- **Pictures name**
  Rename the pictures using a unique identifier containing, country, date and the entry number (first field).
  <CountryCode>_<Seq. No.>_<Date:YYYYMMDD> Ex: CK_1_20190923
  Add another number if more than one picture: e.g., CK_1_20190923_P1; CK_1_20190923_P2; CK_1_20190923_P3. Then copy the pictures in the folder in google drive.

- **Buoy ID number verified**
  Has the satellite buoy ID number been verified by the fishery officer on a picture or directly: Yes/No.

FISH AGGREGATING DEVICE (FAD)

DRIFTING FAD FOUND BEACHED OR AT SEA ?

Where is the buoy ID number ?

ISL+123456 | DSL+123456 | M3I123456 | T7+123456789 or Ze0123456789 | P1234NF | 123456

WHAT IS A DRIFTING FAD?

It is a raft, generally made of bamboo, with a tail of net, cords and/or canvas and a satellite buoy, deployed by tuna purse seiners to aggregate and catch tuna.

WHY ARE WE COLLECTING THIS DATA?

To quantify the number of beached or lost FADs, and to note their impact on coastal areas, which will help improve the management of FAD fishing.

WHAT TO DO WITH THE FAD?

If possible, tow the drifting FAD back to shore then contact the MMR office.

RECORD ANY OF THESE DETAILS:

- **What did you find ?**
  - **a FAD by itself**
  - **a FAD with a buoy**
  - **a buoy by itself**
- **Buoy ID number and any mark painted on the buoy**
- **Date found**
- **Location (Lat/Lon or name of beach, village, island...)**

IF POSSIBLE, NOTE:

- Environment: at-sea, coral reef, beach, lagoon
- Materials: bamboo, net, cord, floats
- Tail length (if possible)
- What did you do with the FAD/buoy? (e.g. removed from water or land, left drifting, sunk, fished)
- Any additional comments? (e.g. environmental damage, entangled animals or aggregated tuna or other animals)

TAKE PICTURES:

- **General picture of what you found**
- **A close-up of the buoy with the ID number visible**

SEND AN EMAIL TO: rar@mmr.gov.ck

OR CALL 28721

Pacific Community / Communauté du Pacifique

Ministry of Marine Resources, Government of the Cook Islands

WWF

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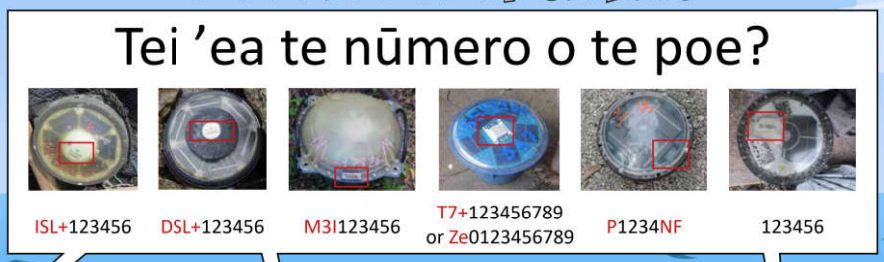
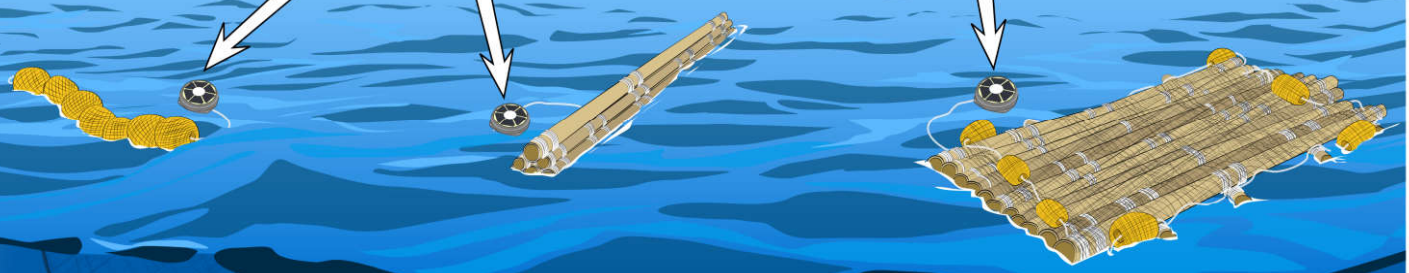
PŌUTO TĀVARENGA IKA

’E PŌUTO PĀPĀNU, KUA KITEA ’IA MAI I TE PAE-TA’ATAI ’Ē PĒRĀ I TE MOANA.





’E A’A TE PŌUTO PĀPĀNU?

’E pā’ata, i ma’ani ’ia ki te ko’e. ’E ’iku kupenga tōna, e taura/kie ’ē pērā te poe purapura-a’i, tei tā’anga’anga’ia no te tuku’anga kupenga tautai tuna i te moana, kia mānganui ’ē kia manotini te ’opu’angā tuna.

’E A’A TE TUMU KIA KO’I MAI TĀTOU I TEIA AU ’AKATAKA’ANGA?

I te tārē’anga ma te paunu’anga o te au Pōuto tei tīria mai ki te pae ta’atai ’ē pērā tei ngaro, ma te ’ākara atu i tō rātou tūranga i te tapa ta’atai, kia rauka tēta’i ’akameitaki’anga i te ’akapu’apinga ’anga o te tautai Pōuto Tāvarenga Ika.

’E A’A I REIRA, TE KĀ RAVE KI TE PŌUTO TĀVARENGA IKA?

Mē ka rauka, kia tāvere’ia / tōtō’ia te Pōuto ki uta i runga i te one marō, ka ’akakite atu i reira ki te ’ōpati o te Pae Moana (MMR).

KIA RĒKŌTI ’IA TĒTA’I O TEIA AU ’AKATAKA’ANGA:

- **’Ea’a tā’au i kite mai?**
  - **’e Pōuto anake**
  - **’e Pōuto ’ē te poe**
  - **’e poe anake**
- **Nūmero o te poe, ’e tātā’anga mē kore ’e māka tēta’i i ’akairo’ia ki runga i te poe**
- **I na’ea i kitea mai ai**
- **Te ngā’i i kitea ai (akataka mai, te tūranga vaito’anga māpū, te ingoa o te tapa-ta’atai, tapere, te ’enua...)**

MĒ KĀ TIKA, ’ĀKARA MEITAKI I TE:

- Aorangi: i te moana, akau kaoa, ta’atai, tai-roto
- Au ’apinga i ma’ani ’ia mai ei: ko’e, kupenga, taura, au
- Te roa’anga ’iku (mē ka rauka mai)
- ’Ea’a tā’au i rave ki teia poe? (’ākara’anga - ’akaātea mai mei roto i te tai, mei runga i te tapa-ta’atai, vai’o ’ua kia pāpānu, ’akatomo ’ia atu te reira, kua ’ī ’ia mai.
- Tēta’i atu au manako? (’ākara’anga - tākinokino i te aorangi, au mea i tā’ī’ī atu ki runga mei te tuna mē kore tēta’i ’uātu au ’ānimara)

NENE’I I TĒTA’I AU TŪTŪ:

- **Tūtū no tā’au i kite mai**
- **Tūtū vaitata (kia taka) no te poe ma tōna Nūmero**

TUKU ATU I TĒTA’I ’ĪMĒRĒ KIĀ

rar@mmr.gov.ck

MĒ KORE TĀNIUNIU ATU ’IĀ

28721

Pacific Community Communauté du Pacifique

Ministry of Marine Resources
GOVERNMENT OF THE COOK ISLANDS

WWF

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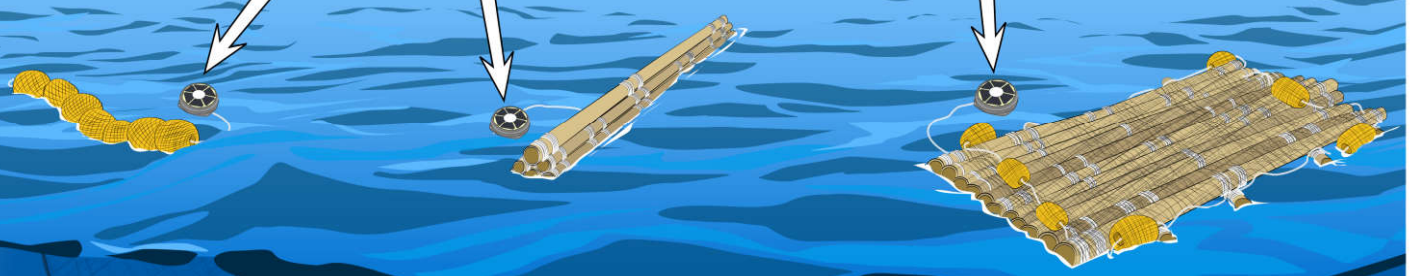
Fakaliliu faka’futuna : Tufele Herman, Selevisi ’o te gelu o Futuna

DISPOSITIF CONCENTRATEUR DE POISSONS (DCP)

SIGNALEZ UN DCP DÉRIVANT TROUVÉ EN MER OU ECHOUÉ !

Où trouver le numéro d'identification de la bouée ?

ISL+123456 | DSL+123456 | M3I123456 | T7+123456789 or Ze0123456789 | P1234NF | 123456



QU'EST-CE QU'UN DCP DÉRIVANT ?

Il s'agit d'un radeau, généralement en bambou, avec des appendices en filet, corde et/ou toile de coton et équipé d'une bouée satellite. Les DCP dérivants sont déployés par les thoniers senneurs dans le but d'agréger puis de capturer des thons.

POURQUOI COLLECTER CES INFORMATIONS ?

Afin de quantifier le nombre de DCPs perdus ou échoués, ainsi que leurs impacts sur les zones côtières, ce qui pourra aider au développement de mesures de gestion.

QUE FAIRE DU DCP ?

Si possible, le tracter jusqu'à la côte puis contacter le service des pêches.

NOTEZ LES DETAILS SUIVANTS :

- **Qu'avez-vous trouvé ?**
  - **un DCP sans bouée satellite**
  - **un DCP avec une bouée satellite**
  - **une bouée satellite toute seule**
- **Le numéro d'identification de la bouée et toute marque peinte sur la bouée**
- **La date à laquelle le DCP a été trouvé**
- **Le lieu (Lat/Lon ou nom de la plage, de la ville, de l'île…)**

SI POSSIBLE, NOTEZ EGALEMENT :

- L'environnement : en mer, récif corallien, plage, lagon
- Les matériaux: bambou, filet, flotteurs, corde
- La longueur des appendices (si possible)
- Qu'avez-vous fait du DCP/ de la bouée ? (e.g. récupéré en mer ou à terre, laissé à la dérive, coulé, réalisé un coup de pêche)
- D'autres commentaires? (e.g. dégâts environnementaux, animaux maillés, thons ou autres animaux agrégés sous le DCP)

PRENEZ DES PHOTOS :

- **Une photo générale de ce que vous avez trouvé**
- **Une photo de la bouée avec son numéro d'identification visible**

ENVOYEZ LES DÉTAILS PAR EMAIL À :

service.peche@agripeche.wf

OU APPELEZ LE 72 26 06

Pacific Community
Communauté du Pacifique

DIRECTION DES SERVICES DE L'AGRICULTURE, DE LA FORÊT ET DE LA PÊCHE DE WALLIS ET FUTUNA

WWF

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FAD Sighting form

Entered in the database ☐

Data collected by a Cook Islands fishery officer regarding FADs, FAD debris and/or satellite buoys found beached or at-sea. Contact 28721 or rar@mmr.gov.ck

Form

Completed on: **Form number (if more than one on the same day, 1 to x):**

Completed by: Name:

Observer/ person who found the FAD

Name: **Phone number:** **Email:**

Sighting information

(Tick one or several) ☐ **A FAD** ☐ **A buoy - ID Number:**

Date: **Island:**

Location (*If no GPS, write name and/or describe it*)**:**

Environment: ☐Beach ☐Coral reef ☐Drifting in the lagoon ☐Drifting in the ocean ☐Rocky shore ☐Mangrove ☐Garden (found previously) ☐Wharf (found previously) ☐Other:

Latitude: **Longitude:**

Comments:

Number of pictures - taken locally: **- taken by the fishery officer:**

FAD Information

Painted marks on the buoy: **Mark on the FAD:**

FAD condition: ☐Intact with submerged tail ☐Intact without submerged tail ☐Beginning to break ☐Mostly fallen apart

The following details should be completed by the fishery observer if the FAD was seen, or if transmitted by the observer:

Raft materials: ☐Bamboo ☐Wood ☐Plastic or metal drums ☐Floats ☐PVC tubes ☐Cords ☐Nets ☐Steel ☐Cotton canvas ☐Plastic sheet ☐Palm leaves ☐Other:

Submerged tail materials: ☐Net ☐Net tied as a "sausage" ☐Cord ☐Plastic sheet ☐Palm leaves ☐Other:

Estimated size of the raft *(Length x Width)***:**

Estimated depth of submerged tail (m)**:**

Any additional information to complete the FAD description:

Fate of the FAD/ the buoy

FAD removed? ☐Yes ☐No **If so, why?** ☐Avoid pollution ☐Landfill ☐Burned ☐Recycled:

Other fates:☐Unknown ☐Left ☐Fished, species and catch (kg): ☐Sunk ☐Other:

Buoy removed? ☐Yes ☐No **If so, why?**

Impact on marine life

Entangled animals? ☐None ☐Turtle ☐Shark ☐Coral ☐Fish ☐Marine mammal ☐Other:

Status: ☐Dead ☐Alive ☐ Unknown **Species** (if known): **Number of individuals**:

Fish aggregated under the FAD ☐Yes ☐No **Species** (if known):

If FAD is entangled on coral reef please state the approximate size of the area impacted: