



**MINISTRY OF FISHERIES AND MARINE RESOURCES
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HONIARA
SOLOMON ISLANDS**

**SOLOMON ISLANDS NATIONAL FISH
AGGREGATION DEVICE (FAD)
MANAGEMENT PLAN**

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Background

Natural floating objects including drifting logs, **tree branches and live animals (whale sharks, manta rays, large marine mammals etc.)** have been known to attract fish. These may be used as shelters or sources of food as they attract small fish. In imitation of these floating objects that attract fish, fishermen have developed, constructed and **used** fish aggregating devices (FAD) of various shapes, sizes and designs **to enhance their fishing activities**. These FADs have mainly been anchored to the sea bed (anchored FADs) but others have been free drifting types (drifting FADs) with radio buoys attached for ease of location. **The** anchored FADs **either** have rafts on the surface (**surface FADs**) or submerged **under water (submerged FADs)**.

Commercial fishing around fish aggregating devices (FAD) began in Solomon Islands waters from the early 1980s when a pilot or trial **group** purse seining operation **was** carried out by the then joint venture company, Solomon Taiyo Ltd. The design of the FADs used was generally of the Payao type for the group purse seine operations. **In addition**, the payaos were also used by the **domestic** pole and line fleet. Domestic single purse seiners were introduced in the late 1980s following the successful pilot purse seining trials. Access to Solomon Islands waters by foreign flagged purse seiners were **initially** restricted as a **precaution** against the likely **adverse interaction** that they may have with **the** local fleets which mainly was a pole-and-line operation.

Although the use of FADs has enhanced the efficiency of the fishing operations, there are issues of special concern **relating** to **the** use of FADs by purse seiners. These include the catch of juvenile and undersize tunas and **the** non-target, dependent **and** associated species. There are also the potential impacts of **FADs on the** natural movement and behaviour of tuna and **the** issue of setting around live animals.

2. Fish Aggregation Devices (FADs or Payaos)

Issues on FADs

Although FADs are an essential part of purse-seine fishing **operations**, there are also concerns that relate mainly to resource sustainability, gear interactions and **the restriction of** access to **the** tuna resources.

- i. In the first instance, **it has been shown that** FADs **to an extent** contribute to the depletion of the bigeye and yellowfin **tuna** populations. **This is mainly due to the relatively higher** juvenile bigeye tunas **catches that have been observed** in FAD associated sets than **in unassociated** FAD sets. **As such**, there are **great** concerns on the number of FADs (i.e. **both** anchored and drifting) **that are used by the purse seiners** and there are moves to reduce **FAD Associated** fishing efforts.
- ii. Anchored FADs **also** pose hazard to shipping and should be deployed away from busy shipping lanes.
- iii. As longline gear may **entangle** with the mooring ropes of FADs, **their** fishing operations **are very** mindful of the locations of FADs and will try **not** to set near them. Loss of gear or fishing time and the fear of losing the gear or fishing time may discourage longline operators from fishing in areas where FADs are deployed. **This** potentially **will deprive** the long line operators from accessing the **tuna** resources available in the areas concerned.

3. Terms

- Anchored Fish Aggregating Device (AFAD) – a floating object anchored to **the** seabed by mooring lines and is set purposely for aggregating pelagic fish to enhance fishing operations
- Drifting FAD (DFAD) – any freely drifting object used for the purpose of aggregating fish to enhance fishing operations. These can be **natural drifting** or purposely built objects to attract fish by use of netting, bamboo and floats with radio buoys attached for location.
- Natural Drifting FAD (LOG) – These are floating objects, natural or man-made flotsam and jetsam (logs, rubbish, discarded ropes, fishing gear, etc), which are capable of aggregating fish.
- Floating Object (FO) – any floating object that is capable of aggregating pelagic fish and is either anchored or free drifting (AFAD, DFAD, LOG)
- Live animals (LFAD) - any large living marine animal that is capable of aggregating pelagic fish and includes **large** marine mammals, whale sharks, manta rays, etc.

4. General Provisions

i) FAD Register.

The Ministry of Fisheries & Marine Resources (MFMR) will maintain a Register of FADs deployed in Solomon Islands waters, including information about the owner, type, location and other relevant details as required from time to time by the Director of Fisheries. **Fishing companies or operators shall advise the MFMR of their intent to deploy both anchored and free-drifting FADs within Solomon Islands EEZ, the estimated FAD numbers and their intended positions prior to deployment. Once deployed, fishing companies or operators shall confirm the actual numbers and their locations and any other relevant details as required by the Director of Fisheries to both the MFMR and the Marine Department, Ministry of Infrastructure Development. For maritime safety purposes, the Marine Department will publish the FAD positions for the guidance of mariners. The Fishing companies or operators are also required under this National FAD Management Plan to inform the MFMR of their intent to deploy and use drifting FADs within the EEZ of Solomon Islands. For proper management purposes, approval will be required from the MFMR before these DFADs are deployed and used by the companies concerned.**

In the event of losing a FAD, **the fishing company or operator concerned is required to notify both the MFMR and the Marine Division of the lost AFAD and its position. On a quarterly basis, the fishing companies or operators are required to provide the MFMR with an updated list of their deployed FADs and their positions.**

In compliance with by-catch mitigation measures by national, regional and international organisations, vessel logbook data will be compiled and analysed periodically for any significant trends. The compiled data will be reviewed annually by the MFMR or other relevant sub-committee established under the National Tuna Management and Development Plan. If the catch of a particular by-catch

species is of national, regional **or international concern, the relevant sub-committee concerned will be required to address this and will develop appropriate** strategies to deal with **this** particular species.

ii) **Reporting Requirements.**

a) Deployments/Replacements dates, positions

Any **fishing** company or operator that **is intending** to deploy AFADs is required to submit to **the MFMR** the intended positions for deployment of **the FADs**. Upon approval, the **fishing** company **or operator** will **then be allowed to** deploy its FADs and **to** report the dates and positions **of the FADs to the MFMR**. The **fishing** company **or operator concerned** will be responsible for the maintenance of its FADs and will report to **the MFMR** the dates, positions **and** ID numbers of any lost or replaced FADs.

Any company or operator that **intends** or **wishes** to use DFADs will be required to seek permission from **the MFMR** and **to** provide the MFMR **with the** ID numbers of its DFADs.

b) Reporting of catches on FAD sets – target species, by-catch **and** discards

The fishing company **or operator will** be required to keep records of sets **made on the** FADs, with details of target species, by-catches, discards as required by **the country's fisheries** regulations or in accordance with conservation and management measures of sub-regional, regional **and international** fisheries management organizations **to** which Solomon Islands is a member.

iii) **Monitoring**

a) FAD Monitoring

Any **fishing** company **or operator that deploys** AFADs within Solomon Islands waters may be required to take a fisheries officer or **a fisheries** observer during **the** deployment exercise.

For purposes of monitoring catches on sets made around FADs, fisheries observers will be placed on **the** fishing vessels to monitor and collect **operational catch** data.

Catch Monitoring

Under this Plan, and enforced through **fishing** licence conditions, **fishing companies or operators will be** required to record catches around FADs in the prescribed **vessel logsheets**. Provisions will be made through amendments to the regional vessel **logsheets**, or through a national arrangement, for adequate space to record by-catch and **including juvenile or** small (immature) tunas.

Fishing vessels setting their nets around FADs will be required to avoid or minimize the catch of juvenile tunas. Captains or fishing masters are required to develop and use methods that avoid **the catching of** juvenile tunas. If the fishing vessel inadvertently sets on undersized tunas, the fishing master **will be required under this management plan and included as a condition of the vessel's fishing license** to abandon the set and take procedures for the live release of **the** undersize tunas. **If not possible, then the fishing master will be required under the conditions of the fishing vessel's license to retain on board all fish caught and including juvenile and**

small, immature tunas. When a set is made around dependant or associated species, live release procedures will be used in accordance with approved methods to avoid **the taking of the** by-catch species.

In the case of large live animals, they will be released in accordance with the accepted special procedures established in the region or by the international tuna organization concerned.

By Catch Reduction and Utilisation

Any undersized tunas and by-catch species **other than marine mammals and turtles** will be retained and utilized in accordance with any **adopted** conservation and management measures of **a sub-regional, regional or International tuna organisations.**

Closed Areas

Restrictions on deployment

Except as provided below, AFADs may be deployed by any licensed fishing vessel in areas of **the EEZ as permitted under** that vessel's fishing licence **in accordance with this FAD management** plan and the National Tuna Management **and Development** Plan. The only exceptions are:

- **Licensed** Foreign Fishing Vessels fishing under an access agreement are not permitted to set **on** AFADs,
- Local Fishing Vessels with licences for purse-seining, longlining **and pole-and-line fishing** will be restricted to **deploy only** a prescribed numbers of FADs in the Inner MGA Area,
- Locally based fishing vessels with licences for purse-seining or longlining will be restricted to **deploy only** a prescribed number of FADs in waters outside the archipelagic waters and territorial seas; and
- No **fishing** vessel will be permitted to **deploy** FADs inside the **main** shipping navigation lanes **as provided by the Marine Department.**

Notwithstanding the above exceptions, small-scale longlining **and droplining** operations which may arise through development initiatives to increase Solomon Islander participation **in the domestic tuna industry** may not be excluded from setting or fishing near AFADs.

Fishing companies or operators are required to notify the MFMR if they intend to retrieve a free-floating FAD that has moved into an area in which the retrieving vessel's fishing licence does not **permit that vessel to operate in.**

No restriction on the overall number of FADs is set under this plan. However, the Director of Fisheries may introduce restrictions in the future on the number of FADs, or setting distance between FADs or any other requirements relating to FADs if deemed necessary **or required under a management measures of a sub-regional, regional or international organisation.** The introduced restrictions may arise **from** stock concerns, gear conflicts or other concerns deemed relevant by the Director of Fisheries.

Exclusion zones

No **fishing** vessel, with the exception of **fishing** vessels **used by** artisanal fishermen and small-scale longlining or droplining operations which may arise through development initiatives to increase the participation of Solomon Islanders **in the domestic tuna industry**, may be used for fishing within five nautical miles of any FAD in the Inner MGA. **The exception is for one that has been placed and maintained by the fishing company or operator that operates a vessel and is permitted under the license of that vessel.** This exclusion zone does not apply to fishing around FADs in the Offshore Areas.

FADs will not be deployed in **any of the** closed areas **below and as** advised from time to time by **the Director of the MFMR:**

- c) define distance from land or villages
- d) locally based Foreign fishing vessels - **excluded from the** archipelagic waters, territorial seas
- e) Foreign fishing vessels **licensed** under bilateral access arrangements, – no AFAD deployment anywhere, restricted DFAD, log sets to outer zones and beyond outer MGA (30 miles band); DFADs drifting into closed areas shall not be set on.
- f) **Foreign fishing vessels licensed under the FSM arrangement and the U.S. Multilateral Fisheries Treaty, - no AFAD deployed anywhere, restricted DFADs and setting on DFADs in areas beyond 60 nm and as may be required from time to time under an adopted management measure of a sub-regional, regional and international tuna management organization.**

Navigation and Shipping Routes.

- No **fishing** vessel will be permitted to **deploy or use** FADs inside the **main** shipping navigation lanes **as provided by the Marine Department.**

- Positions of deployed AFADs shall be **provided to the Marine Dept. in order that notice is given** to mariners for maritime safety purposes.

-FAD Interaction and Gear Conflict with other Fisheries will be assessed and addressed accordingly.

-Minimise impact especially on artisanal fisheries; longline vessels **shall not be used for fishing within five nautical miles of any AFAD except for one set by the fishing vessel in accordance with the terms and condition of its license.**

Marking of and Visibility of FADs and Associated Gears.

Marking guidelines.

FADs shall be well marked with the owner's identifying mark, and with radar reflector or reflecting tape. In addition, radio beacons should be placed on **DFADs**. **FAO guidelines on FAD marking** will be considered in any future amendments to these policy guidelines.

- Standardized marking with name of company and vessel
- Radar reflectors, lights, reflective tapes

- Prohibition on defacing of FAD identification marks and removal of accessories

Electronics.

- identification marks **required** on radio buoys – number, company and vessel name
- **radio** frequencies **used must** be benign to other communication gears;

Access to FADs.

- FADs **will** be for **the** exclusive use of **the** company that deployed the FAD with **limited** access to **by** artisanal fishermen, **domestic** pole and line **vessels**, hand line using pump boats
- Defacing of **ID** marks, removal of electronic devices and destruction of FADs deployed by other companies **are** prohibited **under this FAD Management Plan**.

Conflict Resolution.

- Develop arbitration mechanism **to** compensate deploying company for **the** cost of replacing a damaged FAD
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General FAD Design.

- minimize entrapment of marine animals (seabirds, turtles, marine mammals, sharks, etc)
- materials that minimize fouling of propellers or clogging of engine intakes
- materials to be non-toxic
- biodegradable materials preferable
- Any other requirement that may be adopted by the WCPFC.

Impact on By-catch.

FAD Auxiliary Vessels.

Special Provisions.

- high level of observer coverage;
- restrict chumming, use of aggregating lights etc.
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FISH AGGREGATING DEVICE TYPE

Anchored FADs

- Quantity and geographic spacing
 - set limits for geographical areas;
 - distance between FADs – area of influence 5 nautical miles with 10 miles in between recommended
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- Sea mounts and banks

- depth restriction
- seamounts known to aggregate juvenile tunas
- prohibit sets on FADs on seamounts shallower than 500 m

- AFAD Design
 - stringent marking requirements for identification
 - mooring lines remain below surface and not danger to shipping
 - deploying company to be responsible for maintenance of AFADs

- Permitting and Reporting Procedures for AFAD
 - apply to authority with information on FAD ID number, position (lat., long.), depth at site
 - AFAD design, new or replacement, anticipated deployment date
 - grant of approval for deployment
 - report status of FADs on a regular basis (quarterly) – on station, off station, lost, replacement, problems encountered with dates etc.
- Replacement of FADs
 - replacements should bear same ID no. and located as close as possible to the original

Drifting FADs

- Quantity of DFADs
- Area of Deployment
- DFAD Design
- Reporting, Replacement and Access to DFADs

Live Animal FADs

- Description of the associations
- Detection of animal associations of concern
- Release procedures for large marine animals