SOLOMON ISLANDS NATIONAL FISH AGGREGATION DEVICE (FAD) MANAGEMENT PLAN

JULY 2008
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 tuna 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.


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

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.

**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

- 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