FISHING AROUND FISH AGGREGATING DEVICES (FADS) IN VANUATU

Background

Fish aggregating devices (FADs) have been used in the waters around Vanuatu for over 15 years, to attract and hold schools of tuna for domestic fishermen to exploit. In the early years, it was the Fisheries Department that utilised the FADs as they conducted experimental fishing trials using different fishing techniques, and encouraged local fishermen offshore to fish for tunas around the FADs.

The Commission was involved in some of the experimental fishing around FADs in Vanuatu, with a Masterfisherman assigned to assist the Fisheries Department for six months in 1983. Fishing trials were conducted using one of the Fisheries Department’s plywood Alia catamarans fitted with outriggers for trolling (Figure 1).

Other experimental fishing methods were used around FADs during this visit, including vertical longlines, single-hook shark lines, palu-ahi handlines and gillnets (Chapman & Cusack, 1997).

Good catches of saleable surface species, mainly tunas, wahoo and mahi mahi (Figure 2), were recorded from trolling. Encouraging results were recorded from the mid-water fishing methods, with mainly undesirable species like sharks being taken with the gillnets (Figure 3).

As local commercial, recreational and charter fishermen started to utilise the FADs, the Fisheries Department reduced its fishing activity. This led to the Fisheries Department concentrating more on research activities on the inshore species, whilst continuing to construct and deploy the actual FADs as needed, when materials were available. The Vanuatu Fisheries Department has endeavoured to maintain a FAD programme over the years, however lack of funding and resources has limited their success at times.

As part of the FAD programme in Vanuatu, different construction materials and buoy designs were trialled. In some cases, these design changes were dictated by the availability of different materials, or the preference of the person in charge of FAD construction and deployment at the time.

The experiences gained from these changes have been passed on to the Commission for consideration in developing standard and proven FAD designs for the region. Two designs have been recommended by the Commission, with two manuals produced covering different aspects of programme planning (Anderson & Gates, 1996) and rigging deep-water FAD moorings (Gates, Cusack & Watt, 1996).

FADs in recent years

Funding of FADs in Vanuatu has become more difficult in recent years, as the availability of donor funding has declined and Government budgets have been tightened. With reduced funding, the number of FADs in Vanuatu decreased in the 1990s to the point where for more than seven months in 1996–97, there were no FADs at all.

In May 1997, one FAD was deployed using available materials held by the Fisheries Department, supplemented by materials purchased by local operators reliant on FADs for their fishing operations.
The main person behind the industry support is Mr René Laurent. He has not only assisted in the purchase of necessary materials for FADs, but also assisted the Fisheries Department in constructing and deploying the FADs. More recently, René was able to get some charter and commercial fishermen together to purchase enough materials for two FAD buoy systems for future deployments.

The FAD deployed in May 1997 was of the Indian-Ocean design (Gates, Cusack & Watt, 1996), using pressure floats as the buoy system (Figure 4) instead of the normal purse-seine floats used in the SPC-recommended design.

As there was no polypropylene rope available to complement the nylon rope on hand, a 16 mm
combination rope (polypropylene rope around a wire rope core) was used. The combination rope had several pressure floats attached (Figure 5) to lift the bottom hardware free from the seabed. The anchor used was comprised of several old steel tracks.

Data on the use of FADs in Vanuatu is scarce, even though the Fisheries Department runs a data collection system for commercial fishermen wishing to obtain duty-free fuel. Most fishermen declare their bottom-fishing catch, but not their trolling catch as this in many cases is used as bait for their bottom-fishing operations, or as food for the crew and their families. Table 1 shows the catch data held by the Fisheries Department for FAD fishing in 1996, and highlights the catches taken by René’s operation.

The table on page 30 shows that René’s fishing operation caught over 10 t of saleable fish from the FADs off Port Vila in 8 months fishing in 1996, compared to the remaining catch of just over 3 t in 12-months fishing. René’s operation ceased fishing in September when the last FAD off Port Vila was lost. The other catches recorded were probably from fishermen incorrectly completing their catch returns, or putting the incorrect month down on their return.

As already stated, the table shows the recorded commercial catch data for catches around FADs, as held by the Fisheries Department. However, it does not include the catch or benefits received from the recreational and charter fishing operations, especially out of Port Vila.

**René Laurant’s fishing operation**

René owns a large property at Elaboe Point, a 30 minute drive on a rough road from Port Vila. At his property, René has two 4.2 m aluminium dinghies with 25-horsepower outboard engines stationed in the calm waters of a small bay (Figure 6). The dinghies are operated by Ni-Vanuatu crew (two per dinghy) who travel to the FAD(s) off Port Vila.

**Figure 4: Pressure floats strung together to form the buoy of a FAD**

**Figure 5: Combination rope used for mooring line with streamers on the top section and pressure floats attached to the middle section**
Table 1: Commercial catch records for 1996 by species for fish taken around FADs in Vanuatu showing the catch (in kg) of René Laurant’s fishing operation compared to all other recorded data.

<table>
<thead>
<tr>
<th>Month</th>
<th>Yellowfin tuna</th>
<th>Skipjack tuna</th>
<th>Other species</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>René</td>
<td>Other</td>
<td>René</td>
<td>Other</td>
</tr>
<tr>
<td>January</td>
<td>92</td>
<td>102</td>
<td>548</td>
<td>127</td>
</tr>
<tr>
<td>February</td>
<td>1,764</td>
<td>363</td>
<td>313</td>
<td>94</td>
</tr>
<tr>
<td>March</td>
<td>280</td>
<td>151</td>
<td>200</td>
<td>28</td>
</tr>
<tr>
<td>April</td>
<td>345</td>
<td>51</td>
<td>415</td>
<td>10</td>
</tr>
<tr>
<td>May</td>
<td>625</td>
<td>73</td>
<td>160</td>
<td>119</td>
</tr>
<tr>
<td>June</td>
<td>730</td>
<td>22</td>
<td>390</td>
<td>83</td>
</tr>
<tr>
<td>July</td>
<td>570</td>
<td>128</td>
<td>270</td>
<td>200</td>
</tr>
<tr>
<td>August</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>September</td>
<td>1,231</td>
<td>36</td>
<td>569</td>
<td>10</td>
</tr>
<tr>
<td>October</td>
<td>0</td>
<td>46</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>November</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>December</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>91</td>
</tr>
<tr>
<td>Total</td>
<td>5,637</td>
<td>1,079</td>
<td>2,865</td>
<td>830</td>
</tr>
</tbody>
</table>

Vila twice per day (early morning and late evening) to troll when weather permits. The whole fishing operation relies on there being FADs to troll around—no FADs, no fishing.

The fishing gear used is very basic. Two rigidly mounted trolling lines with a shock absorber rubber are used, one attached to either side of the dinghy, plus a gamefishing rod-and-reel mounted forward (see Figure 6). The hand-hauled troll lines are made from a 40–50 m length of 150–200 kg test monofilament nylon, terminating in a swivel. Attached to the swivel is a lighter monofila-
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A morning trip will commence at least one hour before sunrise; in June this equated to a 4.30 am departure from the anchorage. The vessel travels at full speed to the vicinity of the FAD, slows and starts to troll using the three lines whilst looking for the FAD. The FAD is very difficult to locate visually in the pre-dawn and dawn light, so time is lost searching. To overcome the problem of locating the FAD in low light, René has recently purchased a hand-held GPS (global positioning system) unit for use in locating the FADs. He first has to get the location of the FAD, then train the crew how to use the GPS.

Once the FAD is located, trolling effort is concentrated in the vicinity of the buoy, mainly on the upcurrent side where the tunas tend to concentrate. The skipper of the dinghy, (on this trip Albert Joseph [Figure 7]), drives the dinghy whilst keeping his hand on one of the ridged-mounted trolling lines to feel a strike.

The crew (on this trip Eric Mahit), holds the rod and reel (Figure 8) whilst watching the other ridged-mounted trolling line. When a fish is hooked, the dinghy is slowed, allowing the fish to be hauled in quickly to avoid shark damage.

Most of the catch of tuna was taken in the first hour of daylight. As this FAD off Port Vila had only been in the water for 3–4 weeks, there appeared to be only a small school of tunas aggregated around it, with some mahi mahi.

Figure 7: Dinghy skipper Albert Joseph working one trolling line while steering the dinghy

Figure 8: Crewman Eric Mahit working the rod and reel hoping for a strike
When the tuna stopped striking, the skipper changed his rig and replaced the lure with a single hook baited with a tapered strip of fresh skipjack from the morning’s catch. This was trolled at a slow speed and before long the first mahi mahi was caught. Two lines were then baited and trolled.

Over the next 1.5 hours many strikes occurred from small mahi mahi, however no more were landed. By 9.00 am fishing had finished for the day and we headed for the anchorage at Elaboe Point. The catch was unloaded (Figure 9) and cleaned on the beach before being transported to Port Vila for sale at 350 Vatu/kg.

René has a simple method of paying the crew. The catch is weighed in and sold, direct running expenses deducted (mainly fuel used) and the balance is split equally three ways—one-third to René, one-third to the crew and one-third to the vessel to cover maintenance. Everyone is happy with this arrangement. Unfortunately, without a continuing FAD programme in Vanuatu, fishing operations like this will disappear.

References

