

**JOB PROGRESS REPORT
DEVELOPMENT PROJECT SEGMENT**

STATE: Territory of Guam

PROJECT NO: F-3-D

SEGMENT: 4

PROJECT TITLE: Maintenance and Redeployment of FADs and SWMs (2323)

PERIOD COVERED: October 1, 1999 to September 30, 2000

OBJECTIVES

- 1) To enhance access to Guam's popular coastal pelagic fishing grounds through the continued development and replacement of a system of fish aggregating devices (FADs).
- 2) To maintain and redeploy shallow water moorings (SWMs) at popular fishing and recreational diving locations to minimize anchor damage to reef habitats.

SUMMARY

FADs

Fish aggregating device (FAD) activity under Project F-3-D focused primarily on the reestablishment of FAD systems at existing locations (Figure 1). The project also involved enhancement projects such as the production of FAD location maps for fishers and the improvement of the current FAD system design to extend the average time on station. FY00 activity under F-3-D consisted primarily of reestablishing FADs from existing sites. During FY00, 13 missing FADs were replaced on the west side of the island and 2 FADs (Asiga and Fadian) were discontinued on the east side.

SWMs

Installation of thirty-four shallow water mooring systems (SWMs) began on March 4, 1999 and was completed on April 9, 1999 (Figures 2-3). No activity related to SWM component and system replacement occurred in FY00.

The DAWR SWMs (Figure 3) are intended to accommodate a mixture of user groups and a wide variety of vessel lengths, ranging from subsistence fishing in a small skiff, to scuba diving from the larger 40-foot tour-boats carrying 30-50 recreational divers. However, the majority of vessels utilizing the SWMs are expected to be in the 14 to 25-foot range. To ensure their availability and to prevent the mooring systems from being overloaded, decals have been affixed

to the SWM buoys that indicate a 3-hour time limit, a maximum boat length of 50 feet, and a maximum weight of 35 gross tons.

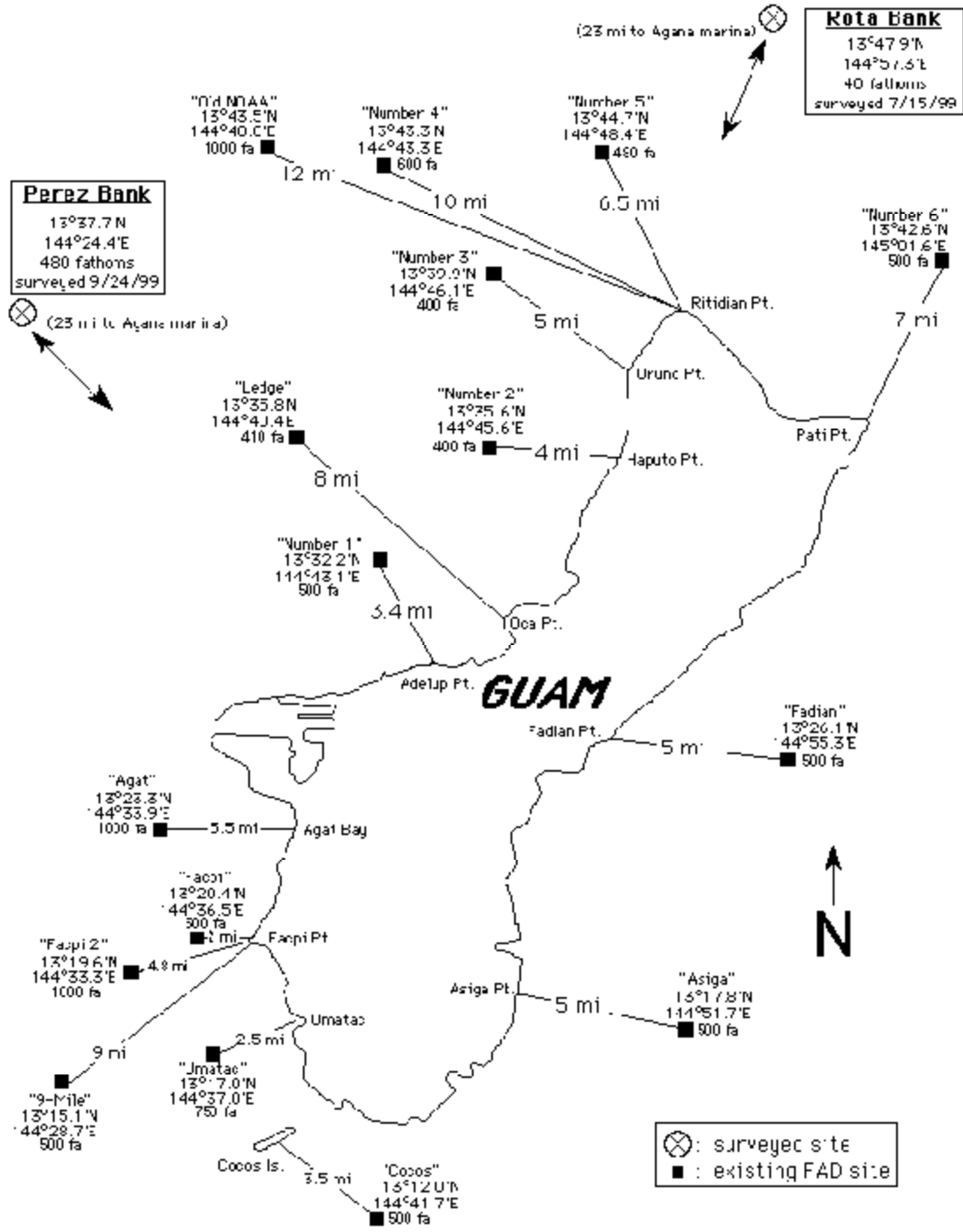


Figure 1. FAD Sites surveyed in FY00.

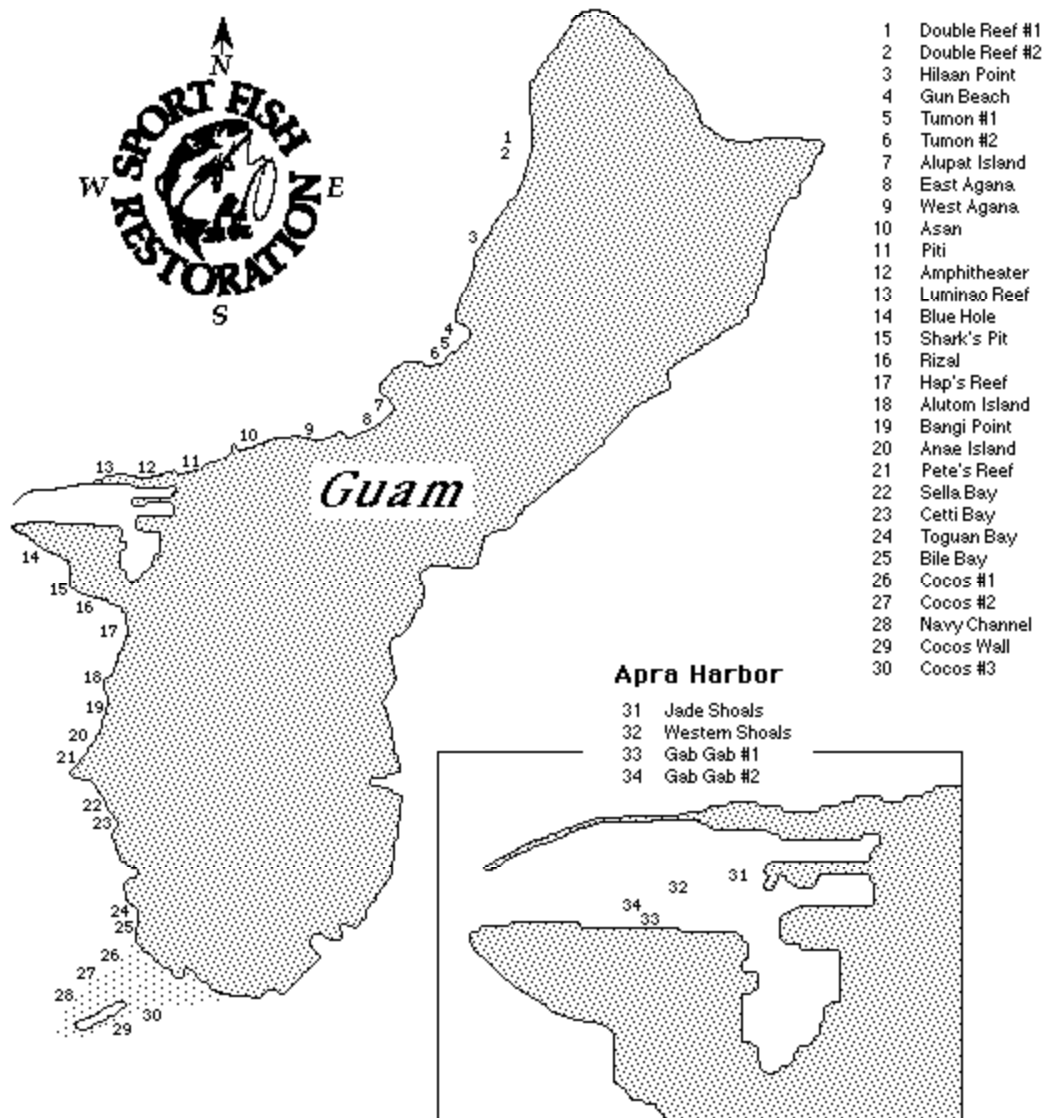


Figure 2. Shallow Water Mooring Sites

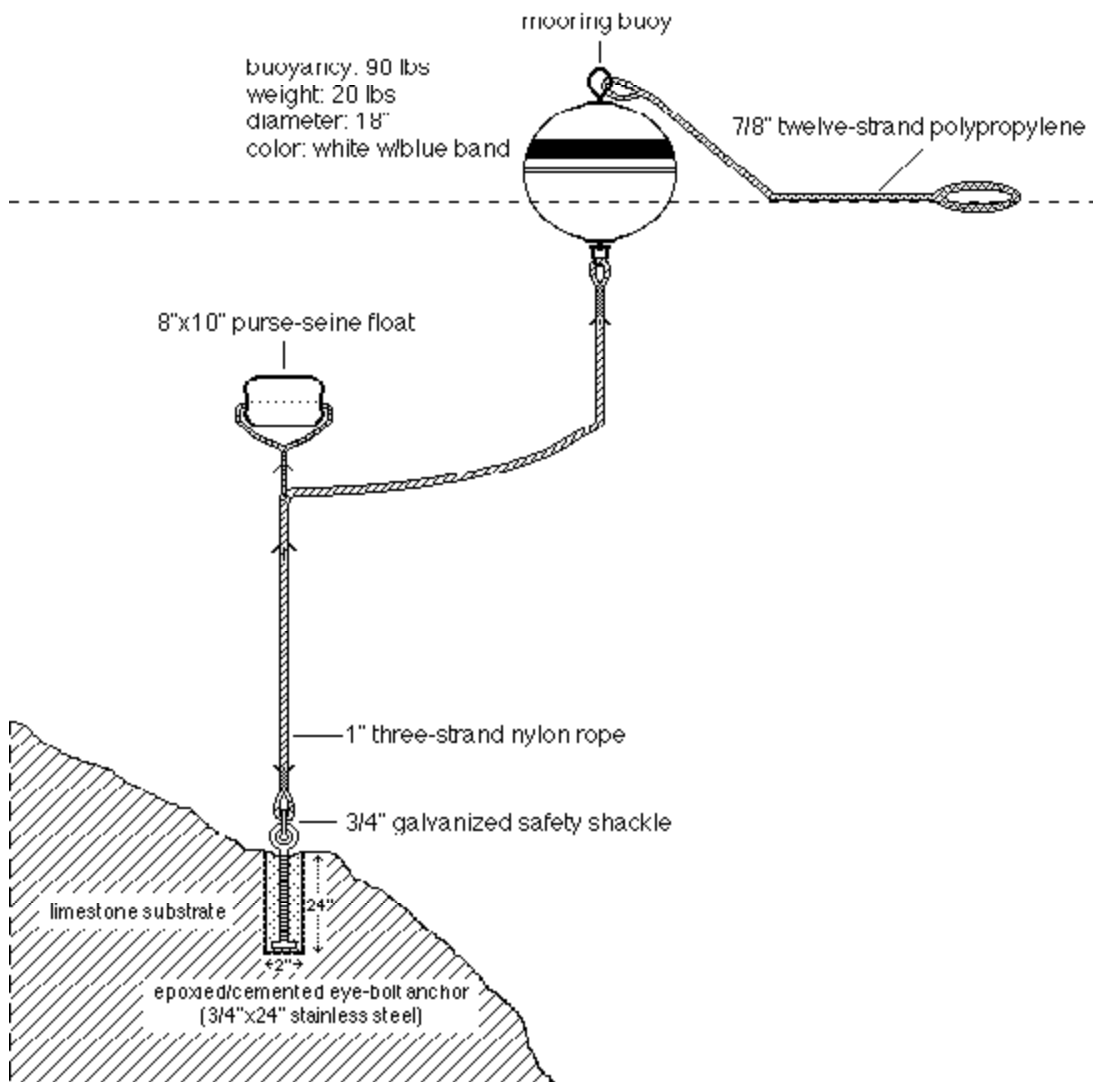


Figure 3. Shallow Water Mooring Design

RESULTS

FADs

At the beginning of FY00, 11 out of 16 FADs were in operation at existing sites around Guam (Figure 1). During the year, 13 FADs were reestablished on the western side of the island and 2 FADs were discontinued on the eastern side, due to minimal use by sports fishermen and rough sea deployment conditions. By the end of FY00, 11 out of 14 FADs were in operation. Zero missing FADs were recovered and reestablished in FY00. A summary of FAD replacement events for FY00 is included in Table 1.

Table 1. FY00 summary of the reestablishment of FADs at existing sites around Guam.

Existing Sites (Figure 1)	Status *	# Replaced
West		
No. 1	X	2
No. 2	X	1
No. 3	X	1
No. 4	O	
Ledge	X	2
Old NOAA	X	
North		
No. 5	O	
No. 6	X	1
Southwest		
Agat	O	1
Facpi 1	X	2
Facpi 2	X	1
9-Mile	X	1
Umatac	X	
South		
Cocos	X	1
East		
Asiga	D	
Fadian	D	

* O = Offline ; X = Online; D = Discontinued

SWMs

Zero SWMs were redeployed at existing sites in FY00. However, inspection of several SWMs revealed the need to replace all rope and shackle components during FY01. Aerial surveys

conducted in FY00, revealed a total of 4 SWM systems noted as missing and included the following (Table 2): #18 Alutom Island; #26 Cocos No. 1; #27 Cocos No. 2; and #29 Cocos Wall.

Table 2. Shallow Water Mooring Site Coordinates and Depths (ft.).

No.	Site Name	Coordinates	Depth
1.	Double Reef #1	13°36.219'N / 144°50.105'E	33
2.	Double Reef #2	13°35.713'N / 144°49.988'E	39
3.	Hilaan Pt.	13°33.763'N / 144°48.985'E	45
4.	Gun Beach	13°31.470'N / 144°48.068'E	20
5.	Tumon #1	13°31.032'N / 144°47.162'E	30
6.	Tumon #2	13°30.641'N / 144°47.162'E	45
7.	Alupat Island	13°21.608'N / 144°46.026'E	47
8.	East Agana	13°29.337'N / 144°45.873'E	35
9.	West Agana	13°29.046'N / 144°44.008'E	48
10.	Asan	13°28.646'N / 144°42.780'E	49
11.	Piti	13°28.602'N / 144°41.833'E	49
12.	Amphitheater	13°27.914'N / 144°40.549'E	57
13.	Luminao Reef	13°28.070'N / 144°39.366'E	45
14.	Blue Hole	13°26.177'N / 144°37.589'E	50
15.	Shark Pits	13°25.260'N / 144°38.372'E	56
16.	Rizal	13°24.666'N / 144°38.953'E	46
17.	Haps Reef	13°23.678'N / 144°39.196'E	50
18.	Alutom Island	13°23.072'N / 144°38.763'E	53
19.	Bangi Point	13°22.373'N / 144°38.528'E	50
20.	Anae Island	13°21.380'N / 144°38.240'E	20
21.	Pete's Reef	13°20.652'N / 144°38.265'E	55
22.	Sella Bay	13°19.361'N / 144°39.100'E	16
23.	Cetti Bay	13°18.932'N / 144°39.188'E	35
24.	Toguan Bay	13°17.003'N / 144°39.665'E	37
25.	Bile Bay	13°16.600'N / 144°39.700'E	48
26.	Cocos #1	13°15.900'N / 144°39.258'E	46
27.	Cocos #2	13°15.061'N / 144°38.715'E	36
28.	Navy Channel	13°14.485'N / 144°38.375'E	37
29.	Cocos Wall	13°14.250'N / 144°39.552'E	45
30.	Cocos #3	13°14.249'N / 144°40.019'E	55
31.	Jade Shoals	13°27.189'N / 144°39.720'E	45
32.	Western Shoals	13°27.020'N / 144°29.230'E	20
33.	Gab Gab #1	13°26.694'N / 144°38.729'E	20
34.	Gab Gab #2	13°26.706'N / 144°38.655'E	60

The DAWR SWM program is likely to be expanded as additional locations within the Marine Preserve Areas (MPAs) have already been requested and identified. Conversely, some sites may be deleted from the program if they are rarely used or in conflict with other local, federal, military or existing commercial operations.

If additional SWM sites are necessary, DAWR will be required to go through the same authorization and permitting processes for any new sites added to the program, including installation of additional systems at existing sites. However, it will likely take much less time to complete the necessary steps for a “Phase II” expansion of the DAWR SWM program.

RECOMMENDATIONS

The F-3-D project to develop and enhance the Guam DAWR FAD program should be continued with the following recommendations for FY01:

- 1) Continue pursuit of program enhancement activities such as identification and permitting of potential new sites, and production of laminated FAD site maps and route planners for distribution to fishers.
- 2) Attach ribbons made of plastic strapping material to upper mooring chain of each FAD to further enhance bait and fish-attracting characteristics of the FADs.
- 3) Develop a practical form of cut protection for the upper 1,000 feet of nylon line, or incorporate a more cut-resistant line in the mooring system to replace the type of nylon line presently being used, given that most breaks continue to occur between 101 feet (where the upper mooring chain ends) down to about 750 feet.

The project to develop and enhance the Guam SWM program should be continued with the following recommendation for FY01:

- 1) A maintenance routine for the mooring buoy program should be implemented under F-9-D now that the initial installation phase has been completed. Procedures should include changing the safety shackle at the anchor pin before the nut seizes on the bolt, and replacement of any missing information decals that may have come off.
- 2) An evaluation of the SWM program should be conducted to determine if the location of existing sites remain satisfactory and if additional sites are necessary. Input from the SWM user groups should also be solicited and compiled to aid in planning the future course of the project.
- 3) Most of the hydraulic equipment purchased by DAWR for the installation of the SWM anchors was stolen in July 1999. Rather than replacing the equipment, DAWR should consider having the contractor selected for any future installation contract to furnish the necessary hydraulic equipment if the charge is reasonable.

PROGRAM COST

The FY00 estimated cost for the project is \$290,000.

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