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PACIFIC TUNA DEVELOPMENT FOUNDATION

NORTHERN MARIANAS TUNA AGGREGATION PROJECT

Final Report

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The Northern Marianas Tuna Aggregation Project was funded as a 1979 project through PTDF for \$28,250. The program got under way in early 1979 when sites were selected, materials were ordered, and bouy construction began. The bouys were the 3-drum NMFS design, i.e., three foam filled 55 gallon oil drums encased in an angle-iron frame. A photosensitive light and radar reflector stood on a galvanized pipe mast. Ground tackle was made up by Division of Marine Resources personnel and consisted of 5/8 inch diameter ploypropylene rope spliced together to make the appropriate length. A counter weight made of ships chain was incorporated to prevent the line from floating. The anchors were made of cement formed into a block weighing approximately 1 ton. A 1/2 inch diameter stainless steel cable 50 feet in length attached the anchor to the rope. From the bouy to the rope was 50 feet of 1/2 inch galvanized chain. All connections were made with shackles and swivels (Figure 1).

There was some confusion over the permit process for the devices and site selection. This was eventually worked out with the Army Corps of Engineers and permits were granted for the placement of five of the devices. In addition, the Trust Territory Japanese FRP vessel OWOL could not be used to deploy the devices because it was a foreign built hull. A government "M" boat was finally chartered to deploy the devices. During February and March 1980, five aggregation devices were deployed around the islands of Saipan,

Tinian, and Rota. Their locations were as follows:

<u>Saipan</u> :	Bouy 1:	145° 40.6'	E long.	Depth:	330 fathoms
		15° 16.8'	N lat.		
	Bouy 2:	145° 33.6'	E long.	Depth:	150 fathoms
		15° 11.5'	N lat.		
<u>Tinian</u> :	Bouy 3:	145° 32.7'	E long.	Depth:	400 fathoms
		15° 05.1'	N lat.		
	Bouy 4:	145° 33.7'	E long.	Depth:	320 fathoms
		14° 57.1'	N lat.		
<u>Rota</u> :	Bouy 5	145° 10.4'	E long.	Depth:	Undocumented
		14° 12.5'	N lat.		

It was unfortunate that the bouys were deployed without the aid of a fathometer. The bouys were designed to have 30% scope. However, several of the bouys were set in very shallow water. For example, Bouy 1 was designed to be deployed in 1000 fathoms but was inadvertently deployed in 330 fathoms. Bouy 2 was designed for a depth of 770 fathoms but was set in 150 fathoms. All of the bouys were lost within two months of deployment except Bouy 1, which lasted until August. Bouy 2 was rammed (presumably) by a large vessel and eventually sunk. It was observed in a smashed state and sinking by Division of Marine Resources personnel several days after deployment. None of the bouys were ever recovered.

In July, 1980, a replacement FAD was fabricated (Figure 2). The bouy was made of only one drum instead of the three drum design characteristic of the original five FAD's. In early August the FAD was earmarked to replace Bouy 5 off of Rota. However, again a fathometer was not available and the bouy was dropped in water too

deep for anchorage, immediately submerged and was lost.

In October, a large bell bouy weighing close to nine tons was deployed just south of the Bouy 5 site off Rota. The bouy was anchored with one inch cable and three cement blocks each weighing about one ton. Apparantly the bouy lifted anchor and drifted away several days after it was deployed.

The life histories of these FAD's were so short as to preclude their evaluation as fish attractants. It is generally felt that 3-6 months is required to build up stocks of yellowfin. However, there were some reports of good catches on several of the bouys. Catches of mahi mahi were reported from around all of the bouys. In addition, one fisherman reported fishing around Bouy 5 and catching 66, 40, and 35 skipjack in three respective fishing days by trolling. Another fisherman reported catching 101 skipjack in one day on the same bouy. Incidental catches of wahoo and dogtooth tuna were also reported around several of the other bouys.

In December, 1981, an FAD utilizing a small nun bouy (weight: <300 lbs.) was deployed off Saipan. The site was carefully selected using a fathometer and the device was set in 300 fathoms of water. Scope was 1:1.08. The position is: $145^{\circ} 41.5'$ E long.
 $15^{\circ} 17.1'$ N lat.

Details of the FAD are shown in Figure 3. As of this writting the bouy is still present and several fishermen have reported catching mahi mahi and wahoo around the bouy.

Conclusions

This FAD project again showed that the single most important factor in terms of evaluating the cost-benefit ratio of an FAD is its longevity after deployment. Productivity of an FAD is directly related to its longevity. In addition, it must be noted that care must be taken to deploy the FAD's at the proper depths and this can only be done with the use of a substantial fathometer. FAD projects in other islands have demonstrated similar losses due to careless deployment where guessing is used in deference of a proper fathometer.

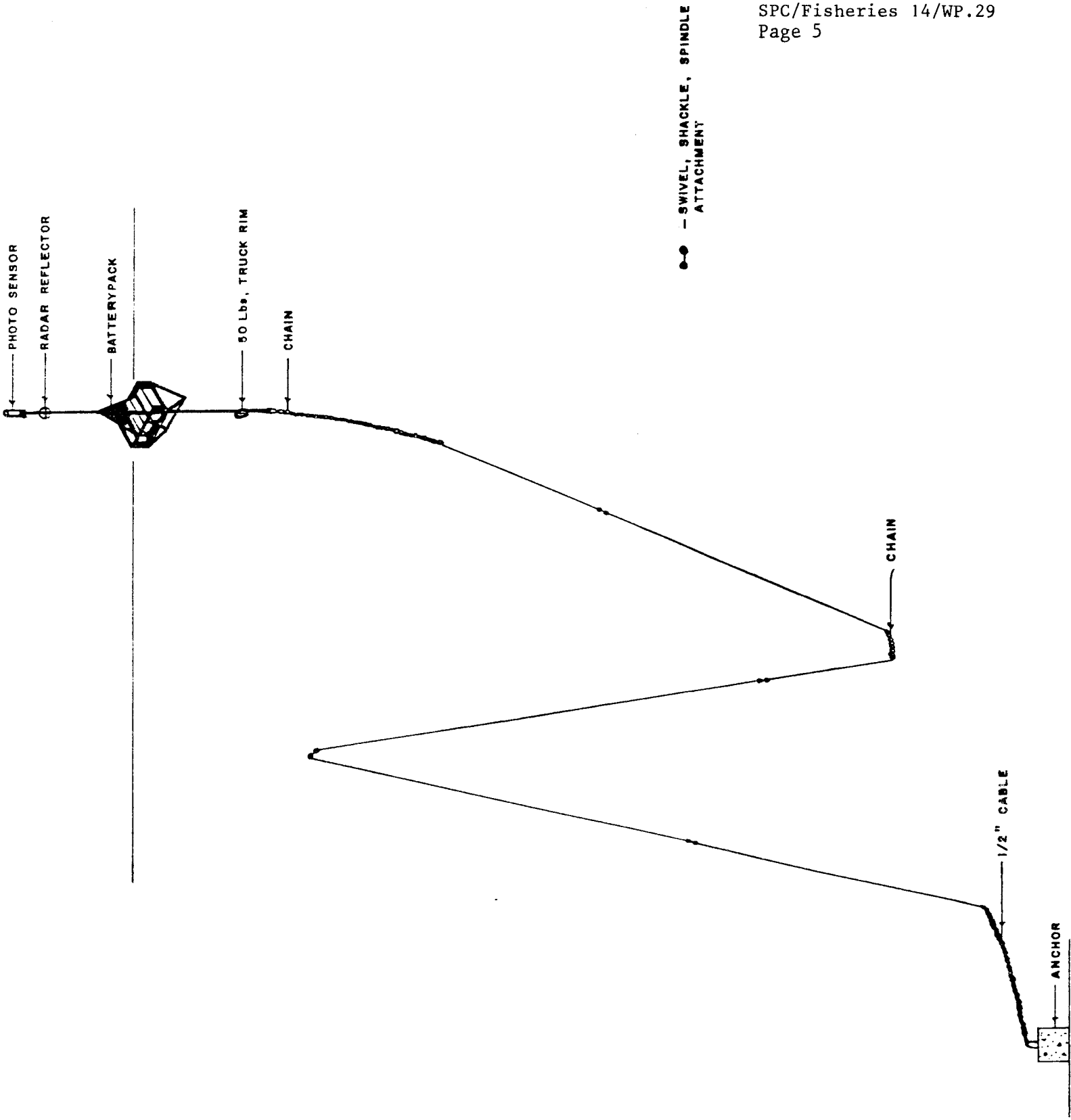


Figure 1.

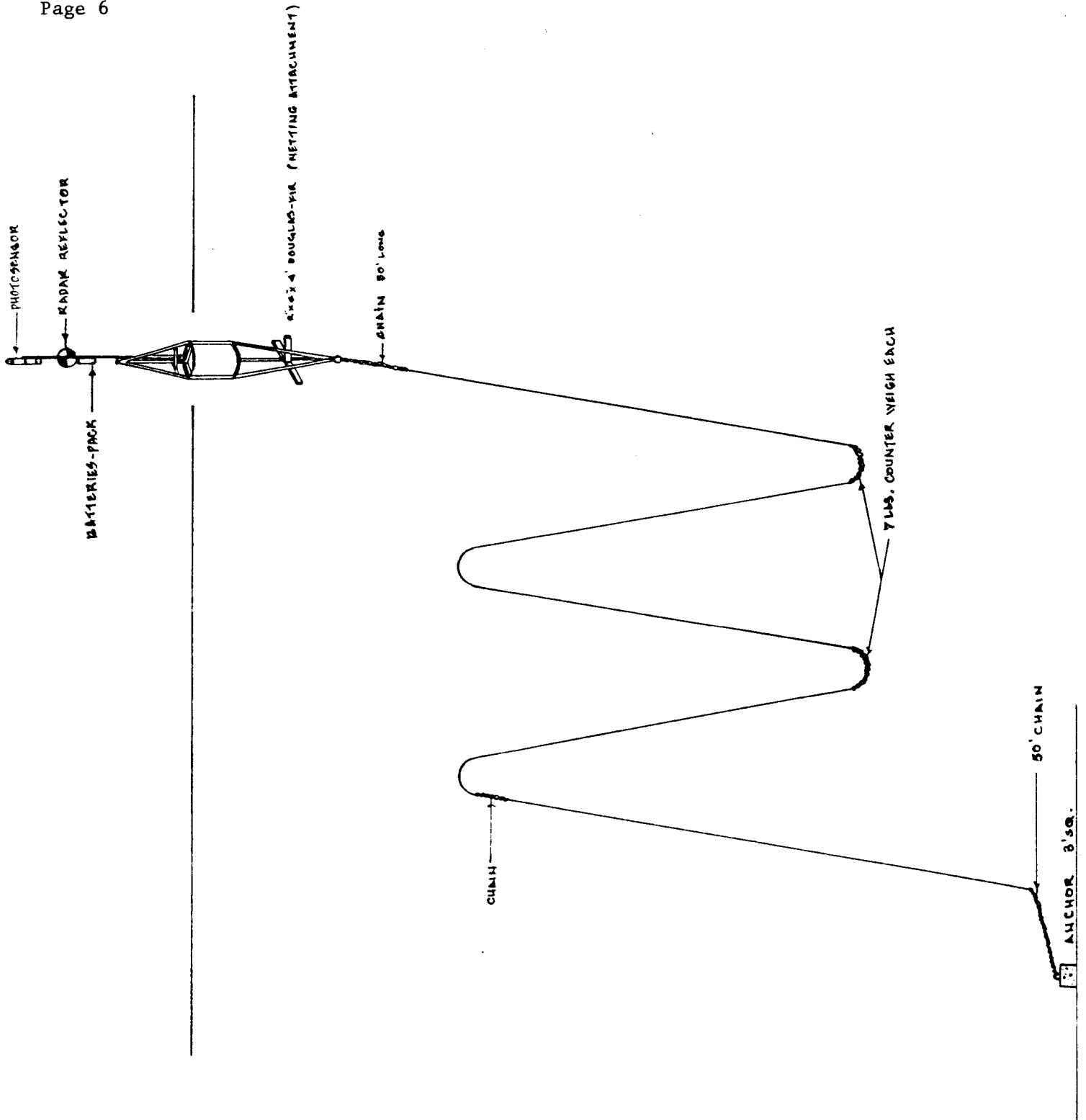


Figure 2.

FAD, Bouy #1, deployed
18 December 1981

15 17.1' N latitude

145 41.5' E longitude

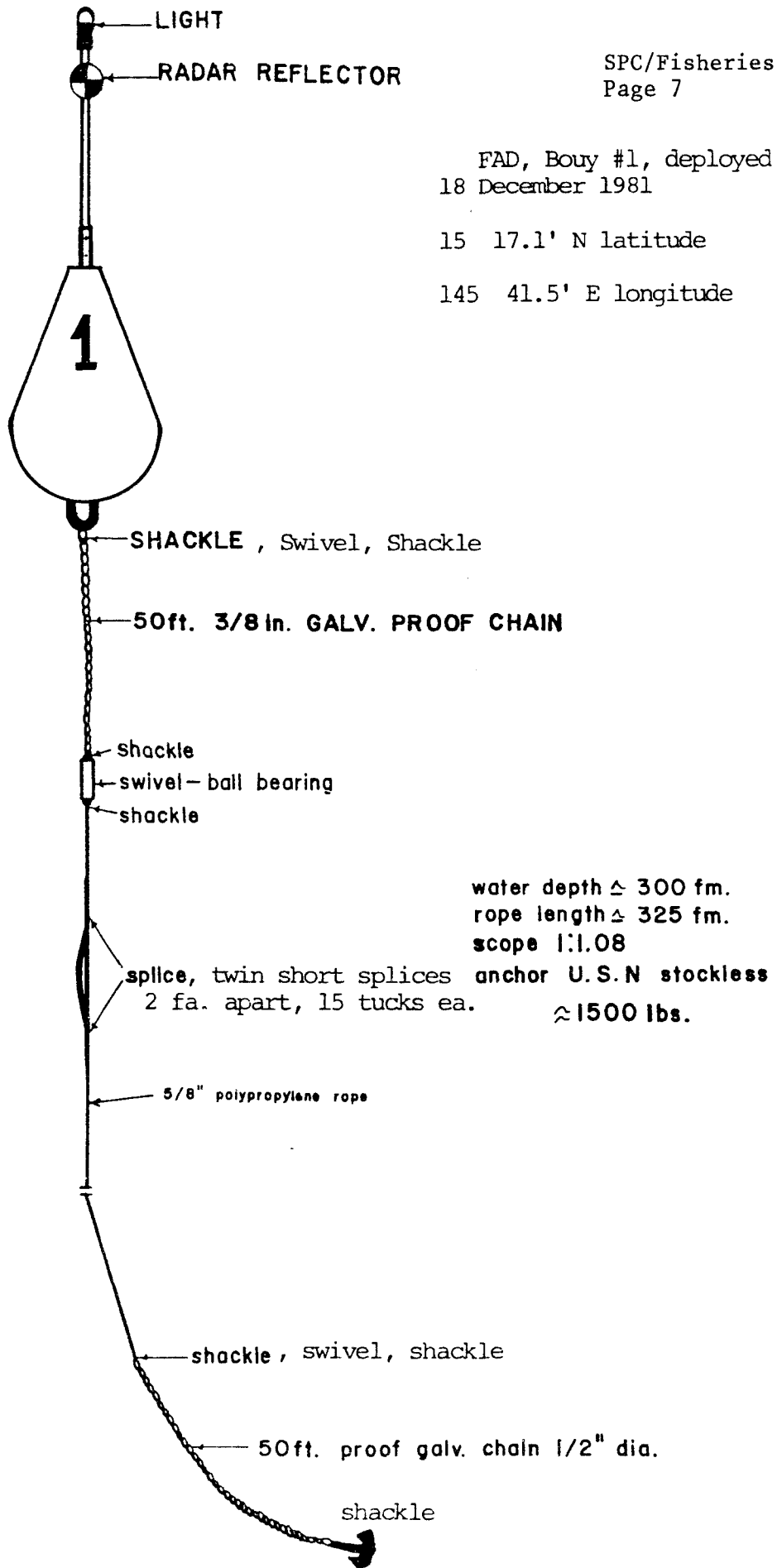


Figure 3.