PAYAO CONSTRUCTION AND SETTING

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INTRODUCTION

Natural and man-made objects which drift in the sea often attract certain species of pelagic fish (fish which swim near the surface of the sea).

The payao is a specially made raft which is used to attract schools of pelagic fish such as tuna.

Payaos (also known as Fish Aggregating Devices) are used in the Philippines, Malaysia and other Asian countries. They are very effective when used during purse seining (see Harvest 5(3)) or trolling operations. They have not been used traditionally in Papua New Guinea.

The Fisheries Section of D.P.I. in Rabaul has made and set several payaos to find out how effective they are in Papua New Guinea's waters.

MAKING THE RAFTS

The most important feature of the payao is a weighted hanging line or 'lag-bong'. The lag-bong is 10-15 m long and has artificial seaweed tied to it. Each payao has 6-10 lag-bongs.

The artificial seaweed becomes colonized with algae (kinds of simple plants, including the seaweeds). The algae attract small pelagic fish which come to the lag-bong for food and shelter. In turn, the small fishes attract schools of larger pelagic fish.

This article describes our work with payaos. We made 3 different types of raft:

1. Cylinder-shaped payao

   We made a cylinder type of payao using two tyres, with bamboos pushed through the middle. The tyres were medium sized, about 50 cm diameter inside and 90 cm outside. About 12 bamboos 6-10 m long were required. These were held together with strong ropes.

   We found that the cylinder-shaped payaos generally lasted longer.

2. V-shaped payao

   To make the V-shaped raft, 8 pieces of bamboo 6-10 m long were lashed to three logs about 1 m apart at the wide end of the V-shape. The bamboos were put through a tyre at the other end, and lashed together. A second tyre was used at the wide end.

3. Square payao

   The square raft was made with 10 pieces of plastic pipe 6 m long. These were lashed together with 7 logs at 90 cm intervals, so that the raft is 3 m wide at one end and about 2.2 m at the other.

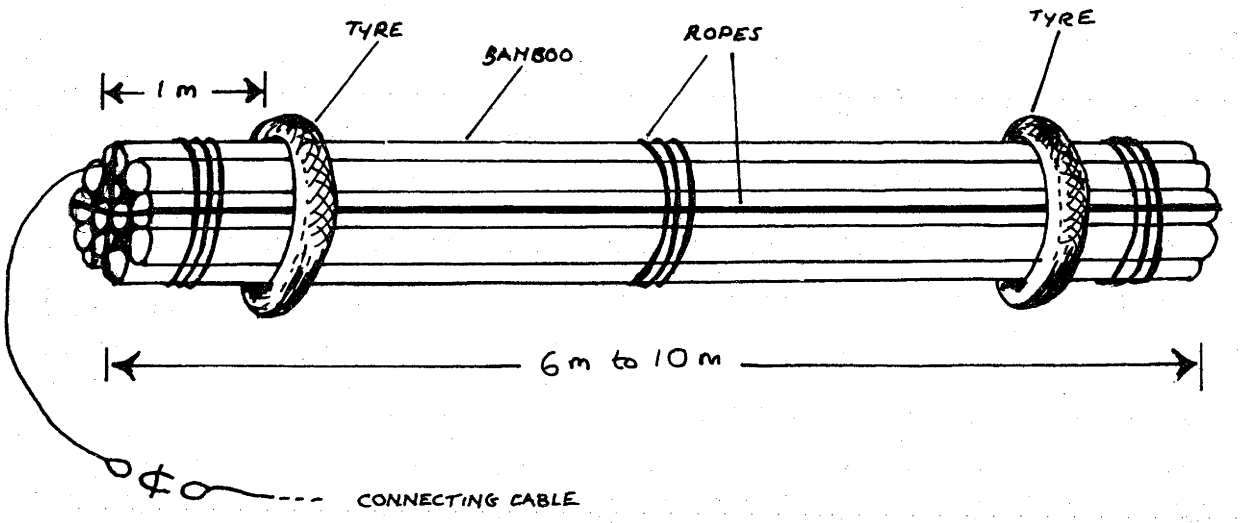
   Two large grade 4 floats were fastened to the top of the raft at the widest end.

In all three types of payao the artificial seaweed consisted of strips of plastic material (plastic sheeting).

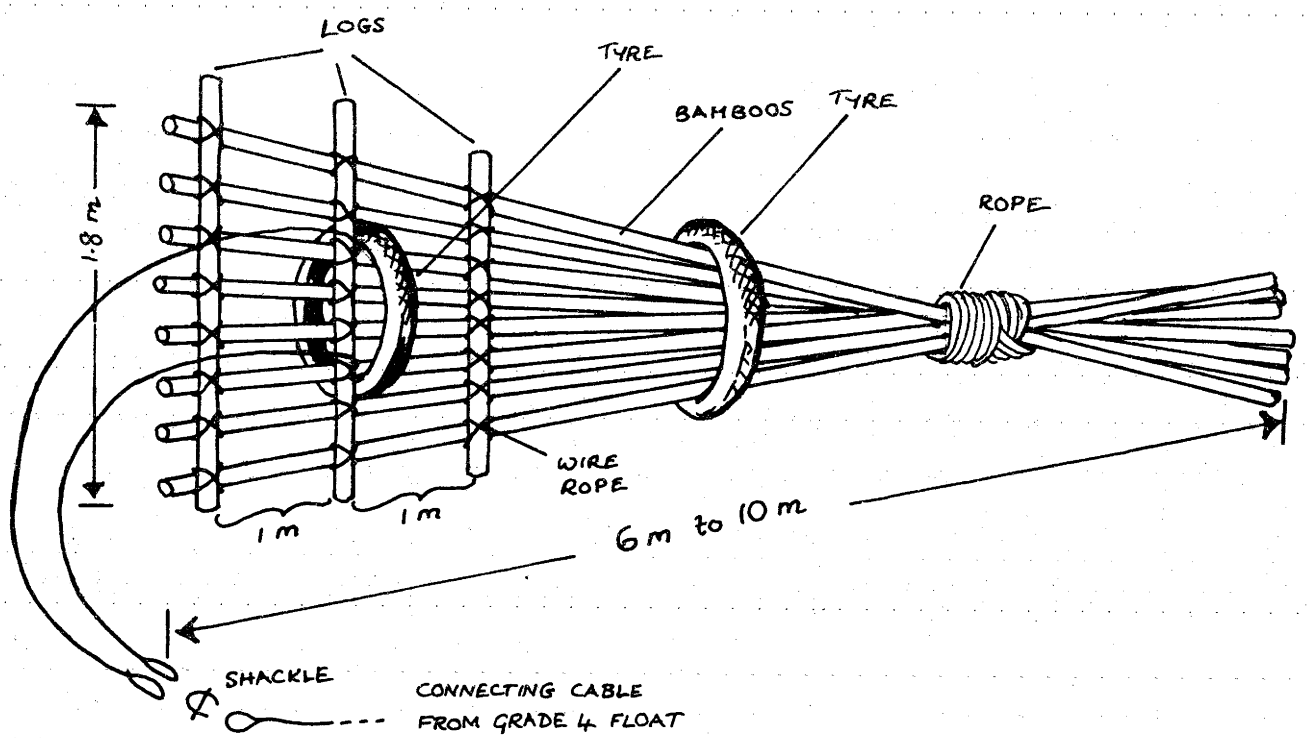
SETTING THE PAYAO

The layout for setting the payao is shown in the diagram on page 156.

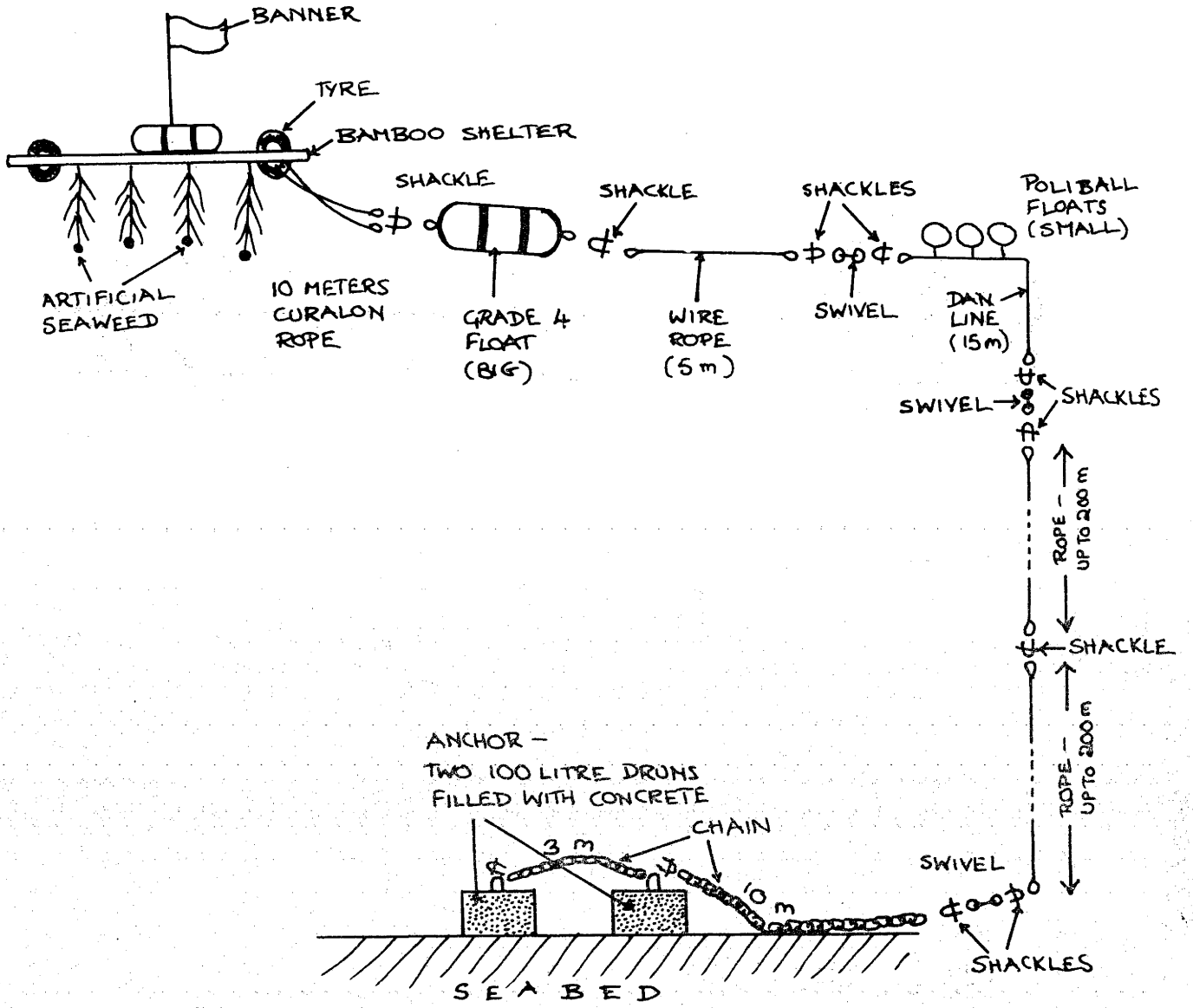
The anchor is made of two 100 litre drums filled with cement.



A cylinder-shaped payao. This type normally lasts longer than the V-shaped or square types



A V-shaped payao



Layout of equipment used to set a payao at depths of up to 400 m.

A large float is connected to the bamboo raft and to the anchor line, so that the anchor line will not be lost during strong winds.

We set the rafts in depths varying from 50 m to 300 m at various places along the coast of East New Britain Province. Five were set in August 1982 along the Livuan Coast in the Ataliklikun Bay. Four more were set in June 1983, one off the Livuan coast, one near Urar Island, one near Massikonapuka Island and one near Watom Island.

Before setting the payaos we first found the depth of the fishing ground. We also found out whether tuna normally migrated to the area or not.

FINDINGS

We found that the payaos seemed to increase the catches early in the mornings (6 am to 8.30 am) and late in the afternoon (3 pm to 6 pm). The catch could be 80-100 kg per day. The fish caught were mainly pelagic fishes such as tuna, mackerel, rainbow runner, trevally and barracuda.

We used the trolling method, but we think that hand lining near the payaos would also

give improved catches. So far not many local fishermen have shown interest.

POSSIBLE IMPROVEMENTS

1. Use plastic pipes instead of bamboo. Bamboo rots quickly and must be replaced every 4-5 months.

2. Make the lag-bongs longer and use heavy sinkers so that the payao does not get carried away in strong currents.

MORE WORK ON PAYAO'S

The Fisheries Department of the Papua New Guinea University of Technology, Lae, have carried out a study on the use of Fish Aggregating Devices and their effect on a fishing community in the Huon Gulf. A report of this study appears in this issue of HARVEST.

FURTHER READING

Quinn, N.R. (1984). Tests on Fish Aggregating Devices in the Huon Gulf. Can they help village fishermen? *Harvest* 10(4): 143-153.

Wankowski, J.W.J. (1979). The Japanese purse seine tuna fishery. *Harvest* 5(3): 140-151.

EDITORIAL NOTE

The Fisheries Division of D.P.I. would like to make the following comments about Fish Aggregating Devices (payaos):

'Whilst payaos have had some success in other regions, their usefulness in Papua New Guinea is not clear at present. In particular, the economics of making them and using them under conditions found in Papua New Guinea are not well understood.

'Before payaos are recommended for use, it must be shown that these devices produce increased fish catches, reduce fishing time and effort, and reduce fuel costs. These benefits must also be shown to be greater than the costs involved.

'Therefore, at the moment, payaos should not be regarded as an economic proposition; but research into their use should be continued by Government Departments and Institutions.'