RESULTS OF COMPARATIVE FISHING TRIALS WITH RECTANGULAR FLAT AND RECTANGULAR CURVED OTTER BOARDS

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Rectangular flat and rectangular curved otterboards were tested under identical conditions and their relative efficiency ascertained on the basis of catch landed by 13 7 m four-seam shrimp otter trawl. During the study, significant increase was observed in the catch when the gear was rigged with curved otterboards. The horizontal spread berween rectangular otterboards was found to be more by 13% and they also offered about 10% more towing resistance than the conventional boards. The otterboards were tested under trawling speed of 2 knots per hour.

INTRODUCTIGN

In their earlier communication Deshpande *et al* (1968) have conveyed the results of comparative fishing trials conducted with rectangular and oval otterboards, taking into consideration the resultant catch of the net as an index to evaluate their efficiency. In Japan, the efficiency of otter trawl is increased by the use of curved otter boards (Hamuro, 1964). In order to compare the effectiveness of rectangular flat and horizontally cur.ed otter boards, series of comparative fishing operations were carried out in the sea off Veraval, and the results are incorporated in this paper.

EXPERIMENTAL

Comparative fishing trials were carried out from 27-2-1967 to 8-4-1967 and from 8-1-1969 to 18-1-1969 and 4 to 8 comparative hauls were made on each day. The grounds fished were same as described by Deshpande and Kartha (1964). During the period of experimentation, 24 fishing cruises were made and 146 hauls of 97 hours and 20 minutes total duration were taken. The depth of water from where hauls were taken ranged from 20 to 30 metres. All the hauls were made at a towing speed of 2 knots.

CRAFT AND GEAR USED

The mechanised investigational fishing vessels "Fishtech IV*" and "Fish Tech VIII**", were employed for conducting the field trials. The net used was 13.7 m cotton, four-seam, overhang, shrimp otter

* Fish tech IV Deshpande, S. D. and Kartha, K. N. 1964, *I P.F.C.* **II (2),** 184-190.

** Fish tech VIII; *Fish Technology Newsletter,* 1967, 8 (1), 18-21.

trawl (Deshpande *et al* 1968). Satyanarayana and Nair (1962) have described the constructional details of the rectangular flat otter boards and Mukundan *et al* (1968) the horizontally curved otter boards.

Results

Particulars of catches landed by the net, when rigged with the rectangular flat and horizontally curved otter boards, together with the other details are enumerated below.

Type of otter board:	*Rectangular flat*	*Rectangular curved*
No of days operated:	24	24
No of hauls made:	73	73
Total duration:	48 hrs 40 mnts.	48 hours 40 mnts.
Total catch in kg.		
Prawns	3216.40	3684.25
Fish	6774.60	7371.75
TOTAL	9991.00	11056.00

Based on the above figures the average catch per hour of trawling in respect of flat and curved otter boards works out to 205 kg and 227 kg respectively.

Discussion

(1) *Varieties of fishes caught:*

The qualitative and quantitative analysis of the catch landed while using the two otter boards are represented in Figure 1.

It would be evident from the figure that except lobsters and miscellaneous varieties of fishes, the other varieties were landed more by the net with curved otter boards.

(2) *Catch per hour per haul*

The data of the catch per haul for prawn and fish separately are graphically

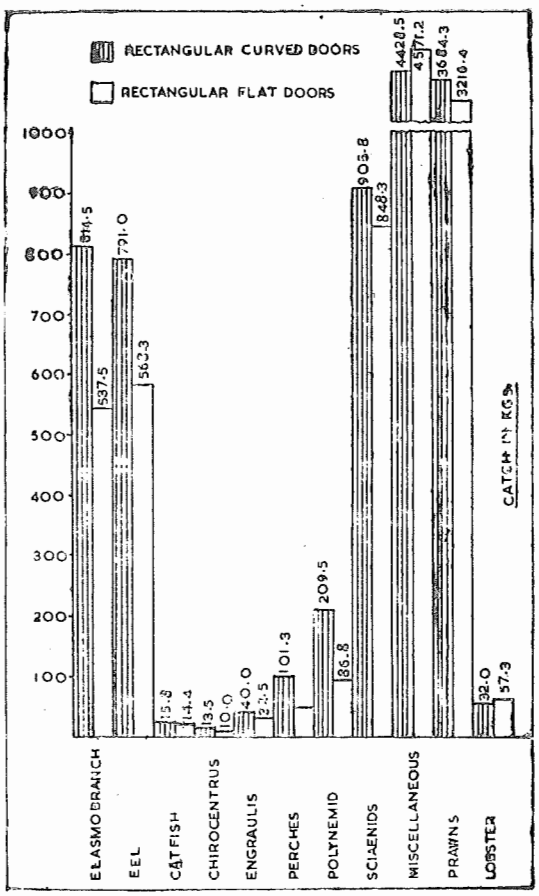

Fig 1. Varieties and quantities of fishes landed by 13.7 m. trawl with rectangular flat and rectangular curved doors.

presented in Figure 2 (A) and 2 (B) following the method described in their earlier communication (Deshpande *et al* 1968).

It would be obvious from the figures that the number of cases in the left upper half are more which is indicative of the fact that the catch per hour per haul of prawn and fish landed by the net is more while using the curved otter boards. The average catch per hour per haul of prawns and fishes landed works out to 77 kg and 150 kg; and 67 kg and 138 kg for horizontally curved and rectangular flat otter boards respectively, indicating an increase in catch of the gear of about 15% in the case of prawn and 9% for

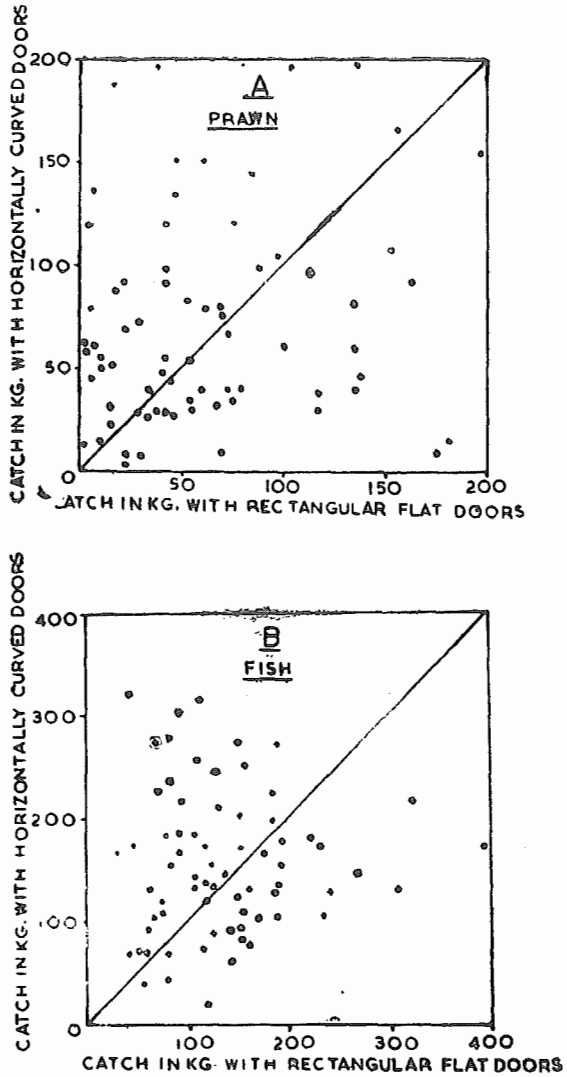

Fig 2 (A) and (B): Catch per hour per haul of prawn and fish landed by the gear with rectangular flat and horizontally curved otter boards.

the fish when rigged with the curved boards.

(3) *Horizontal opening of the net*

The horizontal distance between each type of otter boards in action was recorded during each haul following the methods described by Benyami (1959) and Deshpande (1960). The average horizontal spread between doors in action was in the order of 12.1 m and 12.65 m. These figures further reveal that the distance between the curved otter boards was more by 13% and works out to 50% of the total head-rope length of the net, including sweeps.

(4) *Towing resistance*

The resistance offered by the entire gear, including warps, was measured with the help of a Tension Meter described by Satyanarayana and Nair (1965). The data collected on analysis show that the towing resistance offered by the gear when rigged with rectangular flat and rectangular curved otter boards works out to 232 kg and 255 kg respectively.

From the forerunning discussions it could be concluded that horizontally curved otter boards are more efficient in capture of benthic fauna along this part of the Gujarat Coast.

Summary

The communication deals with the results of comparative fishing operations conducted to study the effectiveness of rectangular flat and rectangular curved otter boards. Based on the analysis of data gathered during the course of actual field trials, following conclusions have been drawn:

The average catch per hour of trawling was more by 22 kg during attachment of rectangular curved otter boards. The average horizontal spread between rectangular curved otter boards in action was more by 13% and works out to 50% of the head-rope length of the net including sweeps. The towing resistance of the gear with horizontally curved otter boards was more by 10%

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