

EXPERIMENTS IN FISHING WITH SHRIMP TRAWLS— ON THE STANDARDISATION OF TICKLER CHAIN

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The communication deals with the results of experiments conducted off Gujarat coast for the standardisation of "Tickler chain" for shrimp trawls. Of the short link chains made of 3.2 mm., 4.8 mm. and 6.2 mm. rods the second was observed to increase the yield of shrimp in the net and without in any way adversely affecting the performance of the gear. The chains used had no influence on the fish catch.

Deshpande and his collaborators (1962, 1964a 1964b) have discussed the relative importance of tickler chain in increasing the shrimp landings of Beam and Otter Trawls. In the present paper an attempt is made to determine the optimum size of the chain.

MATERIALS AND METHODS

Boat & Gear :

The field trials were conducted on board Fishtech No. IV, the dimensional details of which have been described by Deshpande and Kartha (1964b). The net used was 13.7 m. two seam, overhang, otter trawl (Deshpande and Kartha, 1966). The otter boards were those of rectangular type and size 1.39 m. $\times$ 0.63 m. (Satyanarayana and Nair, 1962).

Fishing Ground :

Comparative fishing trials were conducted from 28-2-1966 to 25-3-1966 in the

prawn grounds between Madhwad and Chorwad. Twelve fishing voyages were undertaken and 105 hauls of 53 hours and 15 minutes total duration were taken. The depth of water ranged between 21.8 m. to 29.1 m. (12 to 16 fathoms) and the bottom consisted of soft mud.

Tickler chain :

Galvanised iron short link chains 20 mm. $\times$ 10 mm. and made of 3.2 mm., 4.8 mm. and 6.2 mm. diameter rod were attached to the net. Each chain was 16 m. in length. To help the immediate attachment or detachment of the chain during actual fishing operations, two loops were made with 4 mm. diameter nylon twine at the wing tips of the net along its foot rope. The chain thus attached remained about 0.5 m. ahead of the foot rope.

Experimental procedure :

To assess the effect of three different sizes of chain, several comparative drags

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TABLE - I PARTICULARS OF FISHING OPERATIONS
ALONG WITH THE CATCHES.

Size of chain used	3.2 mm. diameter	4.8 mm. diameter	6.2 mm. diameter
Weight of the chain	6.3 kg.	9.5 kg.	12.3 kg.
No. of hauls made	35	35	35
Total duration	17 hrs. 20 mts.	18 hrs. 5mts	17 hrs. 50 mts.
Average distance between } otter boards in action }	16.17 m.	16.13 m.	15.8 m
<i>Catch Details :</i>			
Prawn	339	545	289
Fish	3096	3137	3116
Total	3435	3682	3405
<i>Average catch per hour:</i>			
Prawn	19	30	16
Fish	178	173	175
Total	197	203	191
Range of average catch / hr. of shrimp	2-242	3-421	2-126
<i>Percentage composition:</i>			
Prawn	9.9	12.1	8.5
Fish	90.1	87.9	91.5

were made by attaching each type of link chain. Since the prawns were available only in a limited patch, the following procedure was adopted in taking the required hauls.

On the initial day of experimentation, first and fourth hauls were made by attaching a chain of 3.2 mm. diameter, the 2nd and 5th with 4.8 mm. chain and the 3rd and 6th with 6.2 mm. chain. On the second day 4.8 mm. chain was attached for the 1st and 4th hauls, 6.2 mm. for the 2nd and 5th hauls and 3.2 mm. for the 3rd and 6th hauls. On the third day, 6.2 mm. chain was used for the 1st and 4th hauls followed by 3.2 mm. chain for the 2nd and 5th and 4.8 mm. chain for the 3rd and 6th hauls. On the succeeding days the above rotation was repeated. The duration of each drag was kept 40 minutes except in a few occasions when the period of tow had to be increased or decreased by 5 to 10 minutes. The speed of tow (2 knots per hour), ground fished and length of warp paid out were as far as possible kept constant.

RESULTS

Results obtained by the comparative fishing are tabulated in Table-1.

DISCUSSION

The averages of catch per hour of shrimps recorded in Table-1 indicate that the maximum rate was when the chain of 4.8 mm. was attached followed by 3.2 mm. and 6.2 mm. chains. Similarly, the averages of catch per hour of fish reveal that the size or weight of chains had no direct influence on the fish landings. It would

be further evident from the Table that the chains having 6.2 mm. diameter rod had slightly reduced the horizontal spread of the net while it was more or less similar when 3.2 mm. and 4.8 mm. chains were attached.

From the foregoing, it could be concluded that a short link chain of 4.8 mm. rod when employed as "tickler chain" for 13.7 m. two seam shrimp trawl gives the optimum results without affecting the performance of the gear in action.

ACKNOWLEDGEMENT

The authors wish to express their grateful thanks to Dr. A. N. Bose, Director and Shri G. K. Kuriyan, Senior Research Officer (Craft & Gear), Central Institute of Fisheries Technology, Ernakulam-Cochin, for going through the manuscript and offering valuable suggestions for its improvement.

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