

STUDIES ON LONG WING TRAWL FOR SHRIMPS OFF KAKINADA (A.P.) COAST - (i) RESULTS OF COMPARATIVE FISHING EXPERIMENTS WITH THE CONVENTIONAL TWO SEAM TRAWL

A. V. V. SATYANARAYANA, G. NARAYANAPPA* & PERCY DAWSON

C. I. F. T. Sub-Station, Kakinada-533002

Comparative fishing operations with the conventional two seam net and a 29.26 m. long wing shrimp trawl of four seam type were undertaken. The result showed that the four seam net gave nearly twice prawn catch than that of the conventional type. It was also found that the four seam net can be developed into a combination trawl for the effective exploitation of both prawns and fish along the coasts off Kakinada.

INTRODUCTION

While trawling on the west coast is an accepted commercial fishing method, it is of relatively recent origin on the east coast. With the striking of fairly rich prawn grounds (Sebastian *et al.* 1965; Sreekrishna and Narayanappa 1970), the method is further gaining importance. Initially trawl designs of the two seam type were popular (Sreekrishna 1970; Narayanappa *et al.* 1972). Experiments of Hamuro (1964) showed certain advantages in a four panel net, when compared with a two seam one. Similarly, Satyanarayana

et al. (1970) also found a four seam net better, particularly in its all-round efficiency. In all the above attempts, the main accent was to increase the prawn catch. With the introduction of medium sized trawlers, the need for more efficient prawn trawling gear is felt more than ever before. In this communication the results of a comparative study of a new four seam long wing trawl with the conventional two seam net is presented.

MATERIALS AND METHODS

Fishing experiments were conducted

*C. I. F. T. Sub-Station, Burla, Orissa.

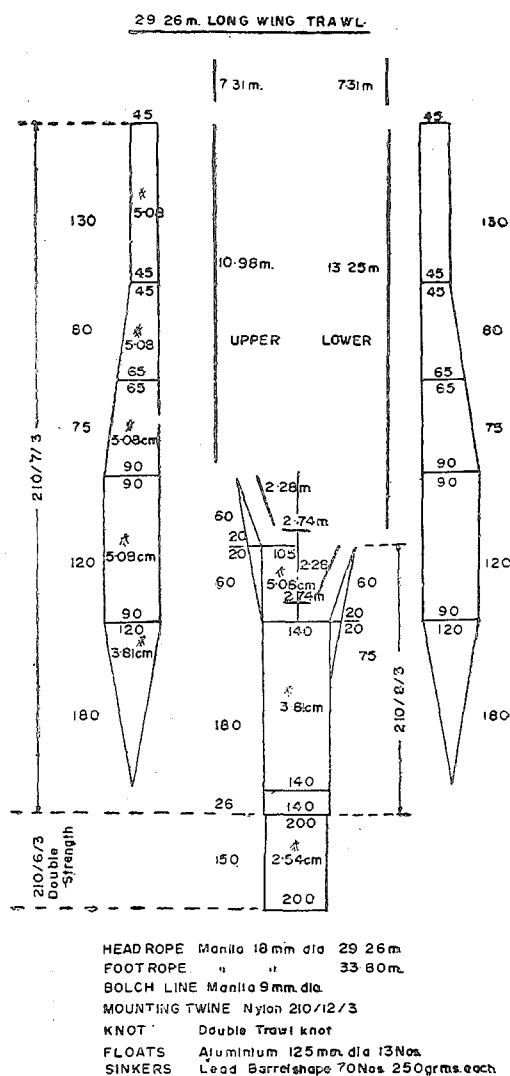


Fig. 1

from 'Fishtech No. 7', a medium sized trawler, the details of which are given by Narayanappa *et al.* (1968). Fishing operations were carried out in the depth ranges of 10-40m. in the area covered by latitude 16°N to 17°N and longitude 82°E on muddy bottom off Kakinada in Andhra Pradesh.

The gear experimented, consisted of a four seam net with long wings.

The head rope length of the net was 29.26 m. (96'). The conventional two seam net of head rope length 18.26 m. (60') described by Satyanarayana *et al.* (1962) was used for comparison. Otter doors used with the nets consisted of the horizontal curved type of dimensions 120cm. × 60cm., weighing 50 kg. each. Single sweep wire rigging of length 20 m. with an iron butterfly danleno was used in between the net and otter door. Comparative fishing was carried out from a single boat. 72 comparable hauls were made. The operating conditions were kept constant on each day to obtain comparable data from each of the gears. The average towing speed was 2.20 knots though the range was between 1.82 to 2.96 knots.

RESULTS AND DISCUSSION

The operational details of the fishing experiments conducted during the period of investigation along with catch data are presented in Table I.

From the table it can be observed that the 29.26m. long wing net showed higher catch rate, over the conventional 18.26m. two seam net, of the order of 1.18 times *ie*, 18.02% more, for the entire period of study. Further, the catch rate of prawn with the new 29.26 m. long wing net is found on an average 1.87 times more than the conventional two seam net, the increase ranging from 1.49 to 3.07 times depending on the period of operation. Besides, the percentage of prawn content in the catch of the four seam net is found to be more than that of the two seam net throughout the period of study.

The horizontal opening between otter boards as well as the towing tension on

TABLE I
THE OPERATIONAL DETAILS AND CATCH DATA

Period of Expt.	Depth range in m.	Warp length in m.	Long Wing net				Conventional net			
			Hauls/ tow. time Hrs.Mts.	Catch/one Tr. hr. in kg.		Total catch in kg.	Hauls/ tow.time Hrs.Mts.	Catch/one Tr. hr. in kg.		Total catch in kg.
				Prawns	Fish			Prawns	Fish	
1. 18- 1-68 to 8- 4-68	10-15	60-90	9/8 -10	14.14	35.27	403.50	17/16-40	9.51	24.26	569.50
2. 12-12-68 to 20-12-68	25-30	110-160	4/4 -00	6.75	11.00	71.00	4/4 -10	0.75	24.25	100.00
3. 18- 4-69 to 20 -6-69	10-35	55-180	24/23-45	16.32	38.46	1,301.00	18/17-30	7.09	40.54	833.50
4. 3- 7-69 to 3- 9-69	10-30	60-150	15/15-00	8.50	25.93	516.50	12/12-00	2.75	23.58	316.00
5. 3- 2-70 to 12- 5-70	20-40	100-200	20/19-45	19.29	74.73	1,845.00	21/20-00	11.64	71.98	1,686.25
Entire Period	10-40	55-700	72/70-40	14.69	43.85	4,137.00	72/70-20	7.87	41.97	3,505.25

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TABLE II

Item		29.26 m. long wing net	18.26 m. conventional net.
Horizontal spread between otterboards	i. Average	22.16 m.	22.52 m.
	ii. Ranges	13.72 to 30.48 m.	13.72 to 31.24 m.
	iii. % in head rope+legs + sweep	26.30	30.89
Towing Tension on warps	i. Average	511.40 kg.	492.80 kg.
	ii. Ranges	487.0 to 592.00 kg.	387.00 to 575.00 kg.

warp in each of the nets is given in Table II.

Striking variation with respect to horizontal spread between otter doors and towing tension is not noticed between these two nets. However, on comparing the designs, the wings in the case of the 29.26 m. net was put at 1.5 times more in length than the length in between jibs. This mainly helps the net to cover more wider floor area in trawling, which in turn helps to obtain more prawn catch. The results of the gear indicate that the same can further be improved as a combination trawl for the effective capture of both shrimp as well as fish.

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