

TRAWL FISHERIES OF THE SOUTH KANARA COAST DURING 1967-70

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ABSTRACT

The trawl catch and the catch rate showed great fluctuations during the different years at Mangalore. Best catches were generally during February-May. Prawns constituted the single largest group, followed by flat fishes, silver-bellies, and sciaenids. High catch rates for prawns and fish were observed in the southern and northern parts of this coast respectively. The catch rate for all fish showed a decline during 1969-70 throughout the entire coast, that at Malpe, being exceptionally low, despite a four-fold increase in fishing effort there.

INTRODUCTION

The mechanised fishing industry in the South Kanara Coast has made a spectacular progress during the last decade. As against a mere 10 mechanized craft during 1959-60, about 550 boats are now fishing in this region. Despite the substantial catch by these mechanised vessels, the information available on the trawl fisheries is meagre and is drawn from the accounts by the Department of Fisheries, Mysore (1962) and Rao (1969). Nagabushanam *et al.* (1964) and Prabhu *et al.* (1967) have reported on the results of experimental fishing conducted over short periods. The results of analysis of the commercial catches landed by the trawlers at Mangalore are presented here with a view to studying the catch composition and catch rate of the various categories of fishes. Data on the trawl landings at the other centres, viz., Mulki, Malpe and Ganguli, have also been included in order to augment our knowledge of the resources of this region.

COLLECTION OF DATA

Boats, varying in length from 6.6 to 13.0 m, fitted with 20-85 H.P. engine using otter trawls with head-rope length ranging from 9-21 m and with cod-end stretched mesh of 2.5 cm, are operated in this region mostly within 20 m depth. The trawling season generally lasts from October to May, fishing being suspended thereafter owing to the onset of monsoon. There are four large river mouths along this coast and the substratum of the inshore area is generally of thick mud.

Month-wise data on the number of units operated and on the prawn and fish catch were obtained through the courtesy of the Department of Fisheries, Mysore. For catch analysis, the fish landings were observed biweekly and their composition estimated by the author. Usually ten boats were examined and their catch recorded. The catch was generally assorted, before auctioning, into major categories like prawns, soles, silver-bellies, ribbon-fishes etc., thus facilitating estimation of the composition. Others, most of which are uneconomic, are grouped as miscellaneous. Eye estimation of the composition was resorted to when the catches were not sorted out. Since the prawns constituted the most dominant group their species composition and landings were estimated by analysing random samples. In the absence of information on the number and duration of hauls, the catch rate is expressed in terms of catch per fishing trip.

TABLE 1. *Catch (in tonnes) percentage composition (in paranthesis below catch) and catch rate (kg) of the various categories of fishes in the annual catches at Mangalore*

Category of fish	1967—68		1968—69		1969—70	
	Catch	Catch/trip	Catch	Catch/trip	Catch	Catch/trip
Elasmobranchs	125.1 (3.5)	7.0	143.3 (2.6)	5.9	26.6 (1.7)	1.5
Silver-bellies	321.7 (9.1)	18.0	385.3 (7.2)	15.8	147.7 (9.5)	8.5
Flat-fishes	532.5 (15.0)	29.7	660.4 (12.3)	27.1	132.4 (8.5)	7.6
Nemipterids	50.8 (1.4)	2.8	159.0 (3.0)	6.5	25.1 (1.6)	1.5
Sciaenids	370.1 (10.5)	20.6	420.2 (7.8)	17.3	77.4 (5.0)	4.5
Ribbon-fishes	109.2 (3.1)	6.1	3.3 (0.1)	0.2	42.1 (2.7)	2.4
Cat-fishes	30.6 (0.9)	1.7	37.8 (0.7)	1.5	59.6 (3.8)	3.4
Lactariids	27.1 (0.8)	1.5	83.2 (1.5)	3.4	28.4 (1.8)	1.6
Pomfrets	25.1 (0.7)	1.4	34.1 (0.6)	1.4	5.3 (0.4)	0.3
Prawns	951.1 (26.8)	53.1	1637.3 (30.4)	67.2	658.8 (42.4)	37.9
Crabs	126.4 (3.6)	7.1	96.8 (1.8)	4.0	11.4 (0.7)	0.7
Stomatopods	121.8 (3.4)	6.8	421.2 (7.8)	17.4	8.3 (0.5)	0.5
Miscellaneous	752.5 (21.2)	42.0	1307.2 (24.2)	53.6	332.3 (21.4)	19.1
Total	3544.0	197.8	5389.1	221.3	1555.4	89.5

FISHERY AT MANGALORE

The details of total yield and its composition and the catch/trip during the trawling seasons from 1967-68 to 1969-70 are given in Table 1. The number of fishing trips was respectively 17,916, 24,356 and 17,373. The best catch and catch rate were obtained during 1968-69 with the respective figures at 5389.1 tonnes and 221.3 kg.

The peak period of the fishery (Fig. 1) was during April-May in 1967-68, January-March in the second year and March-April in the third year. The catch/trip also showed a similar trend except in 1969-70 when it was highest in December. However it is to be mentioned that the fishing effort in that month was comparatively less than that during the regular peak period of fishing activity viz., March-May.

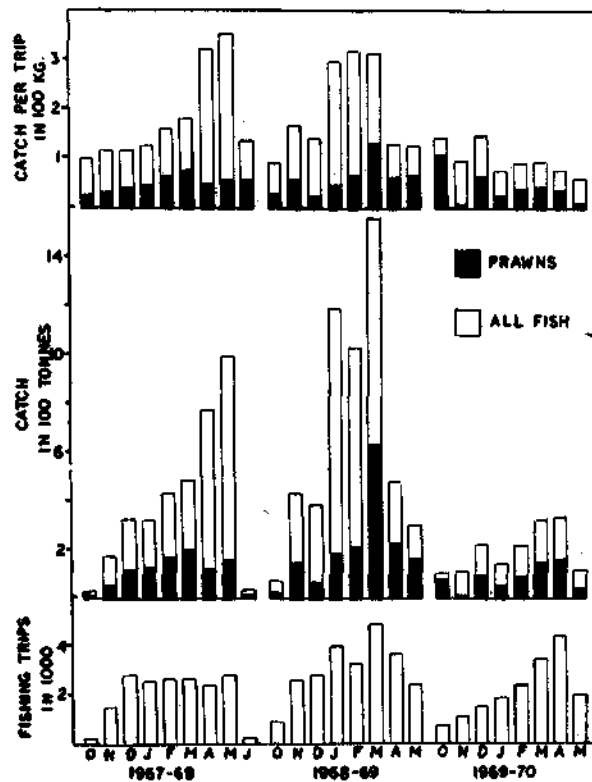


Fig. 1. Month-wise fishing effort, prawn and total catch and their catch rate during the different years at Mangalore.

Prawns constituted the single largest variety in the trawl catch (Table 1). Their contribution to the total catch varied from 26.8% during 1967-68 to 42.4% during 1969-70 and the catch/trip for prawns varied from 37.9 kg in 1969-70 to 67.2kg in 1968-69. It is interesting to note that the prawn fishery was at its best during 1968-69 when the catch rate for stomatopods was also highest. The fishery is mainly supported by *Metapenaeus dobsoni*, *Parapenaeopsis stylifera* and *M.affinis* in the order of their abundance (Table 2).

TABLE 2. *Composition of the prawn fishery in the annual catches at Mangalore (catch in tonnes and percentages in parenthesis)*

Year	<i>Metapenaeus dobsoni</i>	<i>M. affinis</i>	<i>M. monoceros</i>	<i>Parapenaeopsis stylifera</i>	<i>Penaeus indicus</i>	<i>P. merguensis</i>	<i>Acetes sp.</i>	Total
1967 — 68	354.4 (37.3)	129.2 (13.6)	—	453.2 (47.6)	1.9 (0.2)	10.5 (1.1)	1.9 (0.2)	951.1
1968 — 69	967.3 (59.0)	236.7 (14.5)	—	399.1 (24.3)	6.9 (0.4)	28.7 (1.8)	—	1638.7
1969 — 70	298.9 (45.4)	113.7 (17.2)	2.4 (0.4)	227.4 (34.5)	13.3 (2.0)	3.0 (0.5)	—	658.7

The relative abundance of the various categories of fishes in the monthly catch of the different years is represented in Fig. 2 (also see Fig. 1). In some months the prawn component was almost equal to or greater than the fish component, as in April and May of 1968-69 and October and April of 1969-70. Among the individual fish groups flat fishes (*Cynoglossus* sp. and *Psettodes erumei*), silver-bellies (mainly *Leiognathus splendens*, *L. bindus*, *Secutor ruconius* and *S. insidiator*), jewfishes (*Johnius dussumieri*, *Otolithus ruber* and *O. argenteus*) sharks and rays (*Scoliodon palasorrah*, *Rhynchobatus djiddensis*, *Pristis* sp., *Himantura* sp. and *Gymnura* sp.) thread fin-breems (*Nemipterus japonicus*) and ribbon-fishes (*Trichiurus lepturus* and *Lepturacanthus savala*) were prominent with the peak generally during February-May. The miscellaneous group, comprising a variety of fishes such as *Opisthopterus tardoore*, *Caranx* spp., *Thrissoles* spp., *Grammoplites scaber* and *Saurida tumbil*, also predominated during this period. Of the other groups of economic value were the white fish (*Lactarius lactarius*) and pomfrets (*Pampus argenteus* and *Parastromateus niger*) which occurred chiefly during December-March. The stomatopods (*Squilla nepa*) were caught in fairly large quantities during November-January, preceding the peak period of the prawn fishery. Appreciable quantities of crabs (*Neptunus sanguinolentus* and *N. pelagicus*) were landed during January-May.

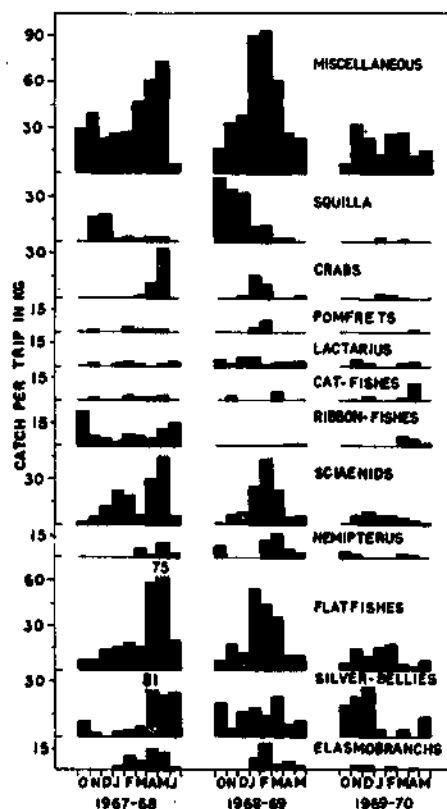


Fig. 2. Month-wise relative abundance of the various categories of fishes during the different years at Mangalore.

FISHERY AT OTHER CENTRES

The data in respect of the centres Mulki, Malpe and Ganguli are presented in Table 3. These reveal a more or less similar trend as at Mangalore, 1969-70 being the lean year. The fishing effort was low here compared to that at Mangalore. The catch of prawn and their catch rate were also less. A decline in the percentage composition of prawns which yielded place to the fish constituent from south to north, was noticeable in the trawler catches. Though the quantity of fish catch was observed to be comparatively less in the northern centres (except at Ganguli during 1969-70), its catch rate was higher particularly at Malpe and Ganguli.

The fishing effort showed a considerable increase during 1969-70 at Malpe (nearly four-fold the 1967-68 figure). The catch/trip for all fish which showed

TABLE 3. Fishing effort (No. of trips), catch (in tonnes), percentage composition (in parenthesis) and catch per trip (kg) during different years at other centres

Year	Fishing effort	Prawns		Fish		Total	
		Catch	Catch/trip	Catch	Catch/trip	Catch	Catch/trip
<i>Mulki</i>							
1967-68	1115	33.3 (18.1)	29.9	151.1 (81.9)	135.5	184.4	165.4
1968-69	1818	89.6 (33.6)	49.3	177.0 (66.4)	97.3	266.6	146.6
1969-70	1443	50.7 (29.0)	35.1	123.8 (71.0)	85.8	174.5	120.9
<i>Malpe</i>							
1967-68	2684	116.3 (9.4)	43.3	1121.2 (90.6)	417.7	1237.5	461.0
1968-69	2727	91.0 (12.0)	33.4	667.4 (88.0)	244.7	758.4	278.1
1969-70	10245	124.8 (17.4)	12.2	591.8 (82.6)	57.8	716.6	70.0
<i>Ganguli</i>							
1967-68	4104	49.9 (2.4)	12.2	1985.3 (97.6)	485.7	2035.2	497.9
1968-69	4092	65.5 (5.1)	16.0	1226.6 (94.9)	300.0	1292.1	316.0
1969-70	8656	229.3 (13.1)	26.5	1513.2 (86.9)	174.8	1742.5	201.3

a downward trend at all the centres was exceptionally low at Malpe during 1969-70. But it remains to be seen whether this decrease is an index of adverse effect on the exploited fishery resources.

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