

PRAWN FISHERY OF THE MANGALORE ZONE* WITH SPECIAL REFERENCE TO THE FISHING GROUNDS

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While the biological aspects of the different commercial species of prawns in Indian waters have been dealt with (Menon, 1951, 1953, 1955; Panikkar and Menon, 1955; George, 1959 & 1961; Shaikhmahmud and Tembe, 1960 and George and George, 1964, Shariff, 1959), no information is available regarding the magnitude of the fishery and the distribution of the species in relation to the various offshore fishing grounds. In the Mangalore zone prawns constituted about 29% of the trawler catches and the present account deals with the prawn production and the catch composition in general. The catches of *M.V. Tarpon*, Government of India fishing vessel, are dealt with in particular, with reference to the different fishing grounds, depth range and nature of bottom. An attempt is also made to find out the distribution of the species in the different grounds. The information provided here, although of a preliminary nature, is nevertheless considered valuable from the point of view of the commercial exploitation of prawns.

MATERIAL AND METHOD

The material for this study was collected from the Government of Mysore fishing boats and the Government of India trawler *M.V. Tarpon*† during October 1962 to May 1965. The landings of prawns by these vessels formed the basis for assessing the total production. The number of fishing operations of the boats was taken into account for calculating the catch/unit (*c. u.*) since no other information was available in respect of the Government of Mysore boats.

Details of the depth range, area of operation, nature of bottom and other details were gathered from the log reports of *M.V. Tarpon*. Random samples of the prawn catches were collected and the weights of the individual species were taken for determining the catch composition. The list of species recorded is given below.

1. *Metapenaeus dobsoni*
2. *Metapenaeus affinis*

*Kasargod to Malpe.

†Commenced fishing operations only in December 1962.

3. *Metapenaeus monoceros*
4. *Parapenaeopsis stylifera*
5. *Penaeus merguensis*
6. *Penaeus indicus*
7. *Penaeus carinatus*

PRAWN PRODUCTION

The trawling operations commence generally in October and last till May. During 1963-64, however, they commenced late in September. A total of 1683.0 and 359.3 metric tons was landed at Mangalore and Malpe respectively during 1962-65. The catch/unit (*c.u.*) was calculated as 91.9 and 28.4 kg* respectively. The data collected from Mangalore and Malpe during these three years are presented in Table 1. It is seen from the table that the total catch and *c.u.* at Mangalore during 1962-63 were more than those of the succeeding years, being 720.00, 469.0 and 494.0 m. tons and 124.6, 87.9 and 68.6 kg. respectively. It is also seen that the *c.u.* was high at Mangalore (124.6 and 87.9 kg. during 1962-63 and 1963-64 respectively) compared to that of Malpe (26.7 kg. during 1962-63 and 29.7 kg. during 1963-64).

TABLE I

Monthwise landings of the prawns by trawlers and catch/unit in kg. during 1962-65 in the Mangalore zone.

Year/Months	Units operated	MANGA- LORE Prawn catch in kg.	Catch/ unit in kg.	Units operated	MALPE Prawn catch in kg.	Catch/ unit in kg.
1	2	3	4	5	6	7
1962-63						
October	24	21.0	0.9	..	..	..
November	274	18088.0	66.0	150	2098.0	13.9
December	1133	67746.0	59.8	240	5322.0	22.2
January	1195	47548.0	39.8	265	4662.0	17.6
February	1122	135891.0	121.1	230	8134.0	35.4
March	1154	257495.0	220.6	235	4747.0	20.2
April	526	135477.0	257.5	206	12237.0	59.4
May	350	57754.0	165.0	82	488.0	5.9

*relates to 1962-64 only.

TABLE I (Contd.)

1	2	3	4	5	6	7
1963-64						
September	6	No prawns	Nil.	..	..	..
October	47	3516.0	74.8	..	..	..
November	718	12996.0	18.1	80	19913.0	248.9
December	1019	73006.0	71.6	209	10363.0	49.6
January	829	84592.0	102.0	388	14470.0	37.3
February	766	61701.0	80.6	329	No Prawns	Nil.
March	751	55240.0	73.6	309	8930.0	28.9
April	686	75142.0	109.5	300	1130.0	3.8
May	513	102831.0	200.5	230	No prawns	Nil.
1964-65						
October	55	1045.0	19.0	..	..	..
November	438	658.0	1.5	16	No prawns	Nil.
December	1130	25691.5	22.7	279	38150.0	136.7
January	1036	5711.0	5.5	*	40786.0	*
February	1003	41944.0	41.8	*	45391.0	*
March	1308	144182.0	14.1	*	57194.0	*
April	1229	171123.0	139.2	*	35900.0	*
May	1001	103613.0	103.5	*	49360.0	*

* data not available.

The peak period of the fishery at Mangalore was noticed in March, May and September respectively during the three years of study. At Malpe the peak season for the fishery was observed to be more or less at the same time except in 1963-64 when it occurred earlier in November. The highest *c.u.* at Mangalore was observed in April during 1962-63 and 1964-65 and in May during 1963-64. It was also observed that the *c.u.* was generally low during 1964-65 compared to the earlier years.

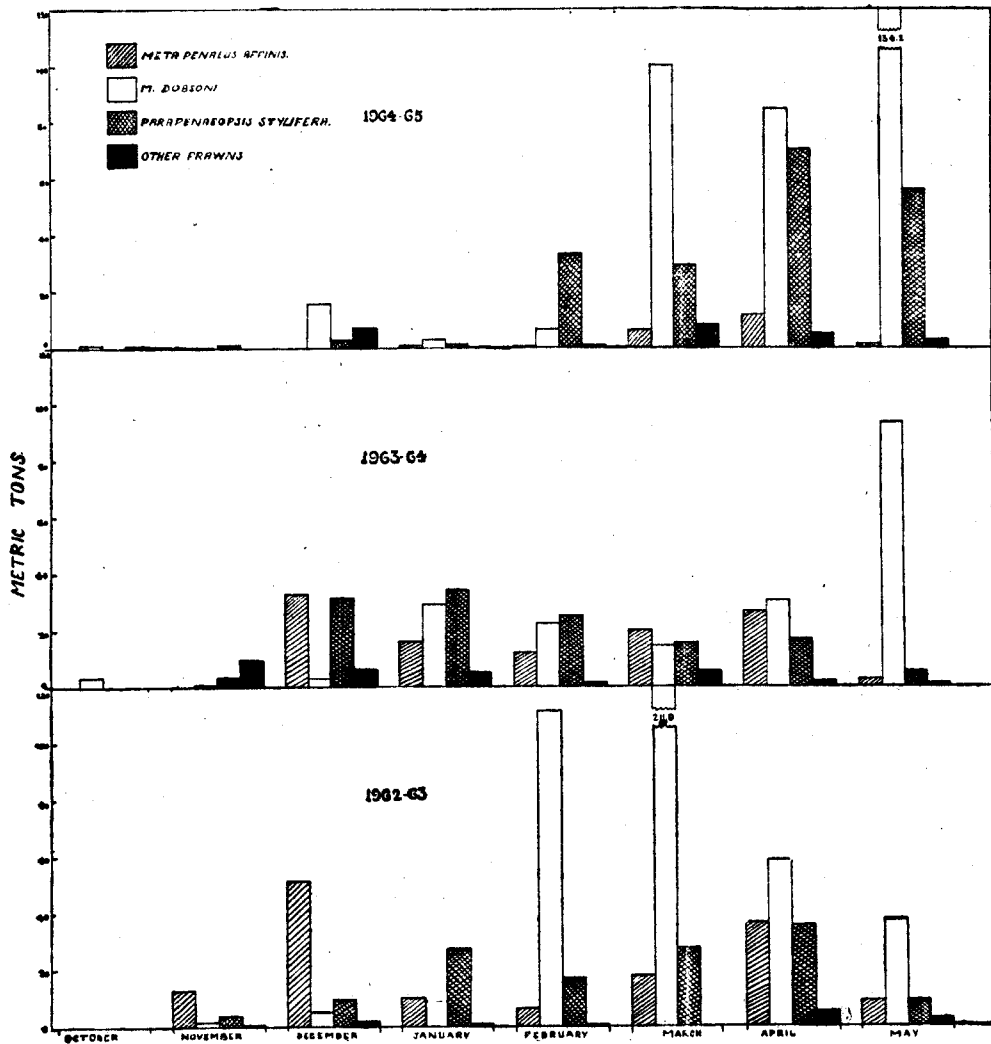


FIG. 1. Monthly catch composition of prawns in the trawler catches of Mangalore zone.

CATCH COMPOSITION

The composition of the fishery of the trawler catches in different months can be seen from Figure 1. In all the three years *M. dobsoni* formed the main bulk of the catch constituting, on an average, 53.8%. *P. stylifera*, *M. affinis*, *Penaeus* spp. and *M. monoceros* formed 26.5, 15.7, 3.6 and 0.4% respectively.

It is also seen from the figure that the peak period for *M. dobsoni* was in February-March during 1962-63 whereas in 1963-64 and 1964-65 it was recorded in May. During 1962-63 and 1963-64 *M. affinis* had two peaks, the primary one

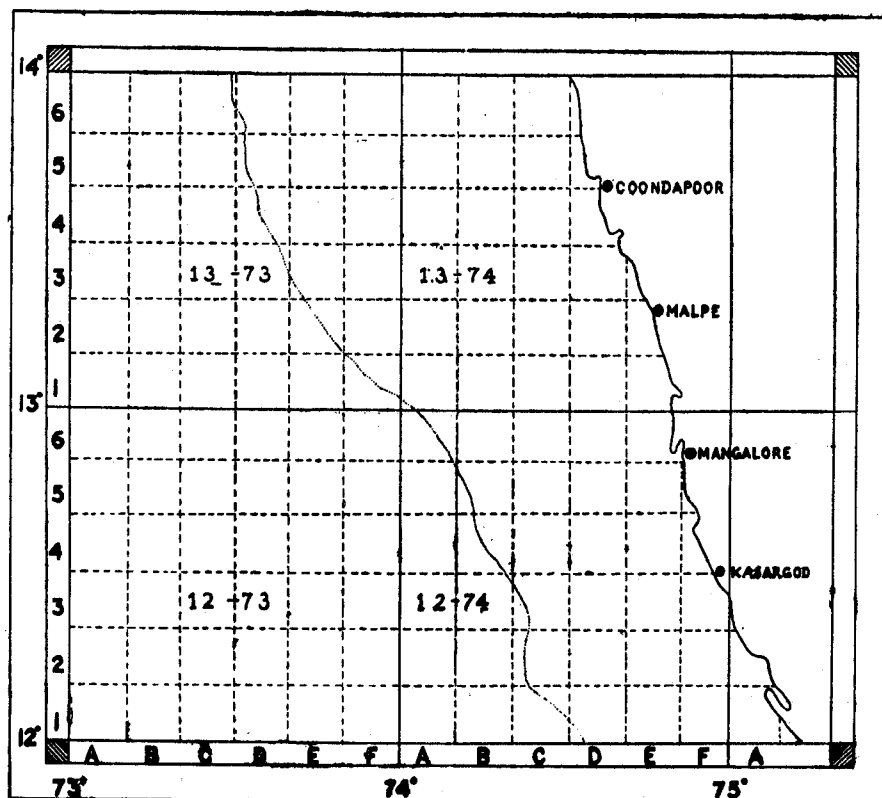


FIG. 2. Fishing grounds.

occurring in December and the secondary in April. In 1964-65 there was only one peak in April. The peak fishery for *P. stylifera* was observed in April during 1962-63 and 1964-65 and in January during 1963-64.

AREA OF OPERATION

The different fishing grounds covered by M.V. *Tarpon* during December 1962-May 1965 can be seen from Figure 2. To fix the fishing grounds, each degree is marked into 6 divisions, latitudinally and longitudinally. The divisions of the latitude are designated as A, B, C, D, E and F and those of the longitude marked as 1, 2, 3, 4, 5 and 6. 12-74 and 13-74 have reference to the latitude and longitude. The areas fished fall in the following regions between depths of 8 and 54 m.

Off Kasargod	—	12-74	2F, 3E, 4D, 4E & 4F
„ Mangalore	—	12-74	6E, 5E, 5B, 6D & 5D
„ Malpe	—	13-74	1D, 1E, 2D, 2E, 3C, 3D & 3E
„ Coondapoor	—	13-74	5C

TABLE II
Fishing details of *M. V. 'Tarpon'*

Fishing ground	Depth range in meters.	Nature of bottom	Prawns in kg. and catch per hour in brackets	% of prawns in the total catch.
12-74				
2F . . .	24-32	Muddy	..	..
3F . . .	24	..	10 (10.0)	6.0
4D . . .	50-54	Sand and shells	..	..
4E . . .	28-38	Muddy	107 (10.0)	5.5
4F . . .	14-24	..	109 (24.0)	16.6
5B . . .	44-48	..	80 (20.0)	6.7
5D . . .	36-50	..	741 (22.8)	2.8
5E . . .	10-30	..	15645 (62.6)	27.7
6D . . .	16-50	..	82 (3.5)	1.5
6E . . .	10-40	..	20805 (57.9)	26.4
13-74				
1D . . .	16-40	..	934 (15.8)	15.7
1E . . .	14-24	..	1440 (38.4)	14.8
2D . . .	20-30	..	10 (0.8)	0.5
2E . . .	14-32	..	440 (36.7)	18.4
3C . . .	34-44	..	50 (6.2)	5.0
3D . . .	18-30	..	80 (6.6)	5.7
3E . . .	8-10	..	40 (10.0)	9.1
5C . . .	24-30	..	10 (2.5)	1.2

ABUNDANCE OF PRAWNS AND THEIR SPECIES IN RELATION TO THE FISHING GROUNDS

Table II represents the yield of prawns in the different fishing grounds and the catch per hour of trawling together with other fishing details. The nature of sea bottom was muddy in all the grounds except at 12-74 4D where the bottom was sandy mixed with shells. The catch of prawns was comparatively more within the 40 metres depth. It is seen that the section 12-74 yielded better catches of prawns, particularly the grounds 5E and 6E. The catch per hour was also high in those grounds. Areas 2E and 1E were found to be the best grounds in section 13-74.

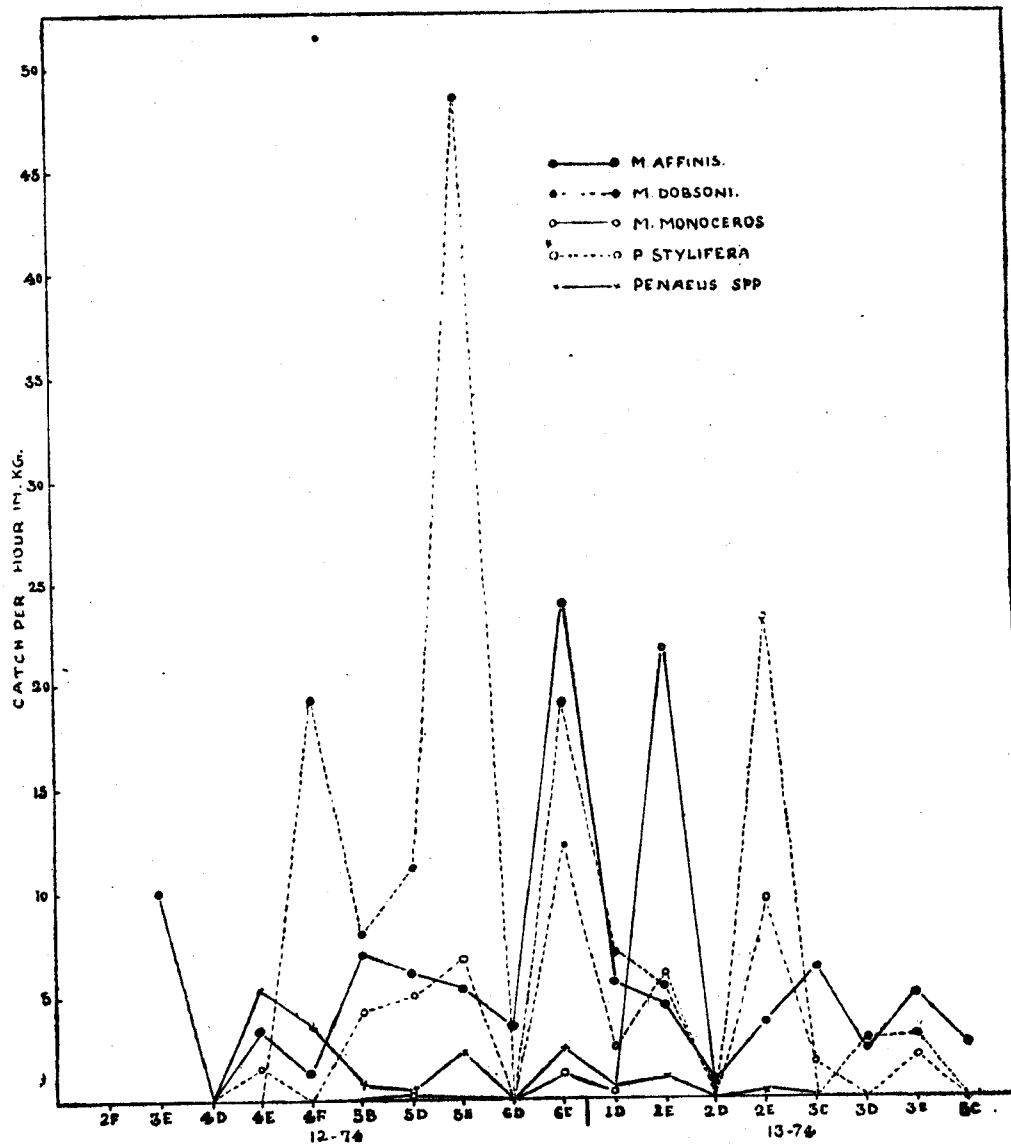


FIG. 3. Area-wise catch/hour of the different species of prawns.

The areawise catch per hour of the different species are presented in Figure 3. It is evident from the figure that *M. dobsoni* (76-90 mm*) dominated in 12-74 SE. *M. affinis* (131-145 mm) and *P. stylifera* (76-90 mm) were abundant particularly in 12-74 CE. 13-74 1E was dominated by *M. monoceros* (136-140 mm).

*Dominant length group in the commercial catch; length measured from tip of the rostrum to the tip of the telson.

Though the catch/hour for *Penaeus* species was generally poor throughout, the maximum was recorded from 12-74 4E. *P. carinatus* was recorded only from 12-74 4F.

GENERAL OBSERVATIONS

The trawling operations commence after the south-west monsoon season by late September or early October in Mangalore and in early November at Malpe and last till May. It was observed that the *c.u.* was high at Mangalore compared to that at Malpe. The analysis of the trawler catches for the three years revealed that *M. dobsoni* always dominated constituting 53.8%, *P. stylifera* and *M. affinis* forming 26.5% and 15.7% respectively of the catch. The comparatively poor catch of prawns during 1963-64 was mainly due to the failure of the fishery for *M. dobsoni*. A catch of 433.8 and 345.7 m. tons of *M. dobsoni* was landed during 1962-63 and 1964-65 respectively as against 196.5 m. tons during 1963-64.

All the grounds fished by M.V. *Tarpon* were muddy except 12-74 4D which was sandy mixed with shells. This ground was the deepest area fished and revealed to be unsuitable for trawling. It is also noted from the data analysed that the prawns occurred abundantly within 40 m. depth. The section 12-74 appeared to be more fertile from the point of view of the prawn fishery than 13-74. 12-74, 6E was found to be a good fishing ground for all the species of prawns. However the maximum catch/hour of *M. dobsoni* was recorded in 5E. Though section 13-74 was generally poor for prawns, area 1E was found to be the best ground for *M. monosceros* and 2E for *M. dobsoni* and *P. stylifera*.

In the course of the present study, 440 kg. of lobsters (*Panulirus fasciatus*) were caught from 12-74 6E between depths of 10 and 40 m. The catch/hour was calculated as 5.5 kg.

SUMMARY

The overall prawn production of the Mangalore zone during October 1962 to May '65 has been estimated on the basis of the landings of the trawlers. The catch composition in detail has also been dealt with.

The data gathered from the Government of India fishing vessel M. V. *Tarpon*, engaged in exploratory fishing since December 1962, were analysed in detail for the prawn production in relation to the different species in the various fishing grounds.

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