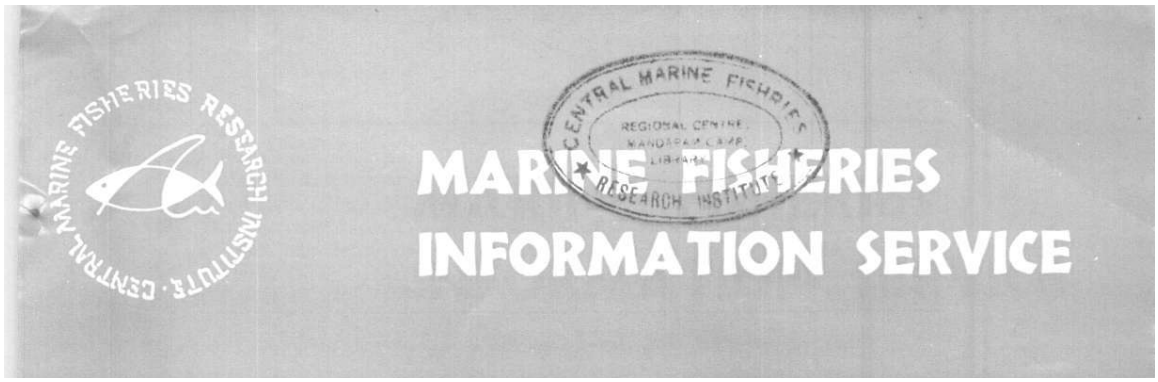

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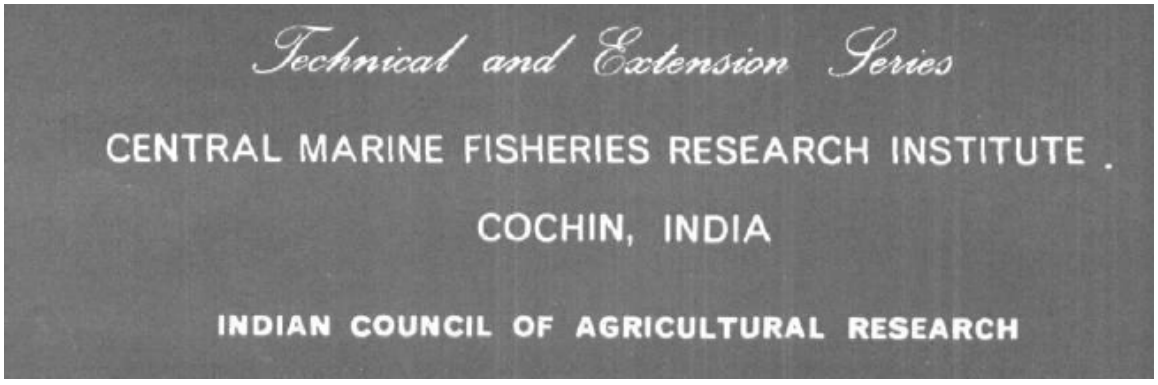

A POTENTIAL NEW RESOURCE OF PRAWN FROM THE KARNATAKA COAST*

Introduction

Along the Karnataka coast, Mangalore, Malpe and Karwar are centres from where prawns are caught in fairly good quantities throughout the year. The prawn production in Karnataka is mainly through mechanised sector, the contribution by non-mechanised sector being quite negligible. It is estimated that around 4 to 5 thousand tonnes of prawns are landed in this state annually and the important species contributing to the fishery are *Metapenaeus dobsoni, M. affinis, M. monoceros, Parapenaeopsis stylifera, Penaeus indicus, P. merguiensis* and *P. monodon* belonging to the penaeid group.

Artisanal estuarine fishery for prawns at Mangalore

The non-mechanised gears like shore seine, miniotter trawl and cast net are operated throughout the year in the estuaries, and during monsoon period (June-August) in the inshore waters, for catching prawns. However, the prawn production from the estuarine waters is rather low in this area. It is estimated that at Mangalore only 5.3 and 14.4 t of prawns were landed from this sector during 1981 and 1982 respectively, contributed mostly by *M. dobsoni* and *P. indicus*. It is interesting to note that in addition to these, another species was landed in appreciable quantities, in these years and found to support a minor fishery in the Mangalore estuary for the first time. This species was subsequently identified as *Metapenaeus moyebi (= Metapenaeus burkenroadi)*. Out of the total prawn catch from this estuary, this species alone accounted for 30.2% and 15.0% with the catch amounting to 1.59 t and 2.16 t respectively during 1981 and 1982 (Table 1). Although the species was available from May to December, the peak catches were obtained during May-July. Among the gears, miniotter trawl was the most effective, contributing 66.1% and 59.7% of the total catch of this prawn, followed by shore seine (29.5% and 21.1%) during 1981 and 1982 respectively. *M. moyebi* formed around 32.8% and 13.4% in miniotter trawl, 66.5% and 21.0% in shore seine and 5.1% and 16.3% in cast net, respectively during these periods (Table 1). Other than a few stray specimens collected from the trawl catches during May-June, this species was not caught in appreciable quantities from the inshore waters of Mangalore.

Fishery at Karwar

An entirely different picture is seen at Karwar, *M. moyebi* being caught exclusively from the inshore waters during these periods. Shore seine is generally operated in the Karwar Bay during monsoon period (Fig. 1). In June 1980 in addition to *P. indicus* and *M. dobsoni, M. moybi* (Fig. 2) occurred in sizeable quantities in these shore seine catches. The occurrence of this species has not been recorded from this area earlier and it is reported for the first time. Surprisingly, again this species was caught in large quantities (2.1 tonnes) by shrimp trawlers from the Karwar Bay during May 1981. (The shrimp trawlers, usually, do not operate in Karwar Bay. However, some boats operated in the Bay between 25.5.1981 and 29.5.1981 on their way back from the usual fishing grounds). The prawn catch mainly consisted of *M. dobsoni, M. affinis, M. moyebi* and *P. merguiensis*. The data on *M. moyebi* landed by trawlers during the above period was collected, mainly through enquiry, as the catches from the Bay and the usual trawling grounds were put together and brought to the shore. Further observations revealed the occurrence of this species in January and February, May and July and November and December in the prawn catches from Karwar Bay.

Size composition of M. moyebi

In the case of this species the sizes ranging from 31 to 90 mm in males and from 31 to 95 mm in females supported the estuarine fishery at Mangalore.
The stray specimens collected from the trawlers at Mangalore were of larger sizes (100-106 mm). The inshore fishery at Karwar Bay was supported by larger sizes ranging from 46 to 100 mm and 46 to 110 mm in males and females respectively.

Maturity and sex ratio

Majority of females were found to mature at 68 mm size. In the Mangalore estuary, practically all prawns were immature except in May 1981 when around 15.2% of females in a sample was found to be mature. A few specimens collected from the trawl catches at Mangalore during May-June were fully mature. At Karwar, mature females were recorded during January-February and May-July with maximum in June 83 (Table 2). It appears that the peak spawning in this prawn is during January-February and May-June. Month-wise distribution of sex ratio indicated that the proportion of females ranged from 56.0 to 88.0% at Mangalore and 30.6 to 83.0% at Karwar (Table 3). The overall ratio for males and females was 30.6 : 69.4 and 40.3 : 59.7 at these centres.

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Table 1. The estimated catch and c.p.u.e. in kg and percentage composition of *M.moyebi* in different gears at Mangalore and Karwar

	MANGALORE						KARWAR					
	Miniotter trawl			*Cast net*			*Shore seine*			*Shore seine & trawl*		
Month	catch	% in prawns	catch/ unit	catch	% in prawns	catch/ unit	catch	% in prawns	catch/ unit	catch	% in prawns	catch/ unit
June 1980	—	—	—	—	—	—	—	—	—	156.0	20.5	0.7
May 1981	600.0	84.1	2.0	—	—	—	—	—	—	2,128.0	1.9	6.5
June	200.0	25.8	0.6	70.0	37.8	0.1	370.0	80.4	2.8	252.0	49.9	0.8
July	125.0	58.8	0.4	—	—	—	87.5	100.0	1.3	—	—	—
August	7.5	50.0	—	—	—	—	12.0	53.3	0.3	—	—	—
September	80.0	44.4	0.4	—	—	—	—	—	—	—	—	—
November	37.5	6.0	0.2	—	—	—	—	—	—	—	—	—
December	3.0	27.3	0.1	—	—	—	—	—	—	—	—	—
May 1982	15.0	16.7	—	15.0	8.3	—	—	—	—	—	—	—
June	1110.0	21.3	0.7	398.0	17.0	0.4	443.0	24.2	1.7	393.0	28.1	2.2
July	103.0	40.7	0.1	—	—	—	—	—	—	—	—	—
November	64.0	2.2	0.2	—	—	—	15.0	4.2	0.5	—	—	—
January 1983	80.0	23.2	0.2	—	—	—	—	—	—	—	—	—
February	—	—	—	—	—	—	—	—	—	12.0	26.7	—
June	312.0	33.7	0.3	—	—	—	—	—	—	112.0	28.4	0.6
July	—	—	—	—	—	—	—	—	—	7.0	1.2	—

Fig. 1. Shore seine operations in Karwar Bay

Fig. 2. *M. moyrbi* caught from Karwar Bay

Table 2. Percentage distribution of mature and spent/spent recovering females of *M. moyebi* during different months at Mangalore and Karwar.

	June 1980	May 1981	June 1982	Jan. & Feb. 1983	June	July
MANGALORE						
M	—	15.2	—	—	—	—
Sp/SpR	—	—	—	—	—	—
KARWAR						
M	7.4	1.0	5.2	23.5	32.6	6.8
Sp/SpR	—	—	50.6	36.5	30.4	—

M - mature; Sp/SpR - Spent/spent recovering

Table 3. Sex ratio distribution of *M.moyebi* during different months at Mangalore and Karwar (% of females)

June 1980	May 1981	June	July	August	Nov.	June 1982	July	Jan. & Feb. '83	March	June	July
MANGALORE											
—	64.8	56.1	60.0	63.5	73.2	88.0	70.0	—	75.5	73.8	—
KARWAR											
54.6	76.6	—	—	—	—	40.9	—	30.6	—	72.3	83.0

General remarks

M. moyebi is found to support a minor fishery in the Mangalore estuary as well as in the Karwar Bay. The estuarine fishery at Mangalore is largely supported by smaller sizes, whereas, at Karwar the inshore fishery is supported by larger sized prawns. The interesting point about the fishery of this species here is that although juveniles are abundant in the Mangalore estuary, apart from a few stray specimens caught in the trawl nets, adults are not caught in appreciable quantities either from the estuary or from the nearby inshore area. With the result the location of the adult population remains unknown and if it is possible to locate this population anywhere nearby it would definitely increase the catches of larger sized prawns.

At the same time in Karwar the adults are caught in fairly good quantities from the inshore waters of the Bay, while juveniles are not caught from any of the nearby estuaries. Thus in this case it is not clear where exactly the juvenile phase of this adult population is completed. From the occurrence of a few juveniles (26–32 mm) from the same area in the Bay in June (in 'gorubale' catch) the possibility of their entire life cycle being completed in the Bay itself cannot be ruled out. Or it is also possible that this adult population of this particular species is originated from the stock found in the Mandovi-Zuari estuarine system of the Goa coast where the species in smaller sizes are found to occur during the monsoon period.

It is equally intriguing that the adult population of this species is caught from the Karwar Bay in fairly good quantities only during a very limited period of May-July. The search for this unconventional resource in the nearby areas during the rest of the year as well as other localities has not been successful so far. Thus it is not clear what happens to the stock of the population during the rest of the year. It is possible that the resource of the species is limited so as to be fished out during the period of 2 or 3 months. But in that case the smaller size groups of the prawns also should have been represented in the catches at some time or other. Experimental trawling at different depths along this coast particularly during March-May would probably throw more light on this problem.