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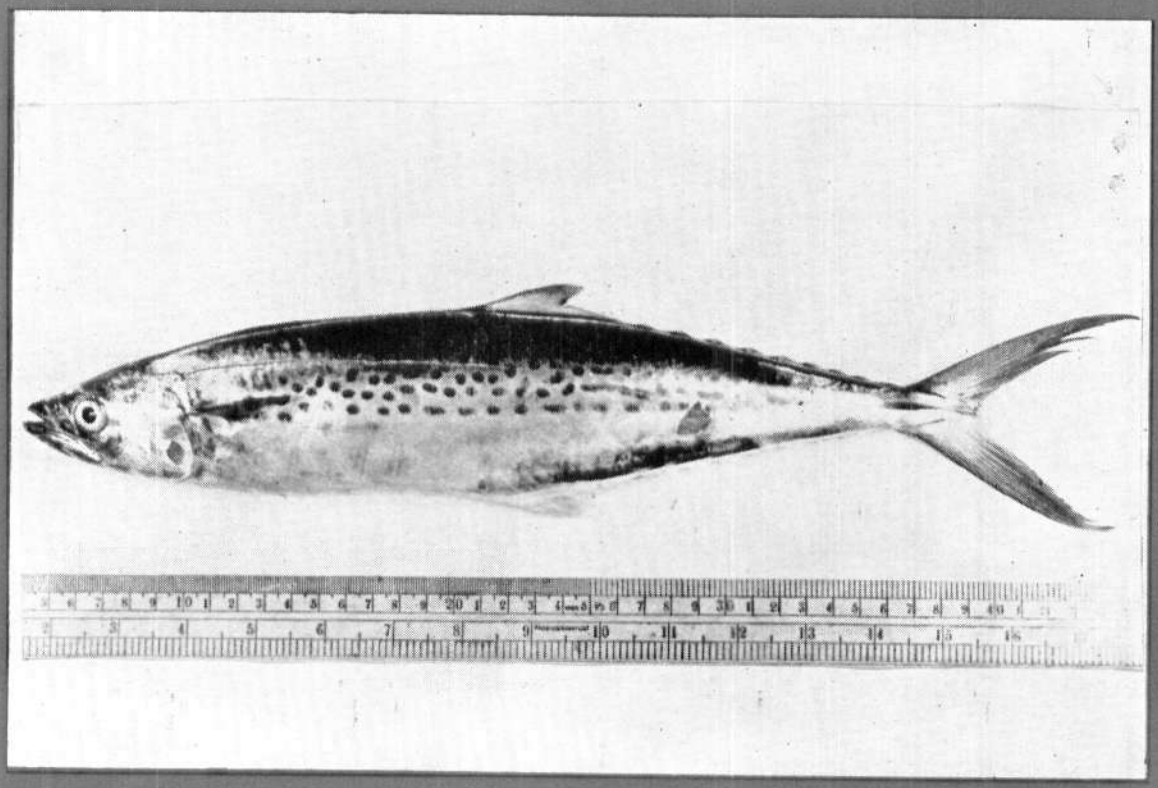

No. 81
MARCH 1988

Technical and Extension Series

CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
COCHIN, INDIA

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

OBSERVATIONS ON THE FISHERY OF BANANA PRAWN ALONG THE NORTH KANARA COAST WITH NOTES ON ITS SCHOOLING BEHAVIOUR AND MIGRATION*

Introduction

Penaeus (Fenneropenaeus) merguiensis commonly known as banana prawn is one of the commercially important penaeid prawns occurring in Indian waters. This species inhabits the coastal waters upto a depth of about 55 metres. It is relatively more abundant in the shallower areas where the sea bottom is muddy and sandy. *P. merguiensis* occurs throughout the Indo-Pacific in tropical and sub-tropical waters supporting commercial fisheries along the coasts of Malaysia, Thailand, Indonesia, Australia, India and Pakistan. On the west coast of India this species is caught in appreciable quantities from North Kanara, Goa and Ratnagiri coasts. It forms 1.4% of the total prawn landings by shrimp trawlers at Karwar. A seasonal fishery for this species from June to August has been reported from Goa. Fishermen of North Kanara coast operate indigenous gears such as gill nets and shore seines in coastal waters throughout the year at different depths, depending on weather conditions. During 1981, the author noticed occurrence of banana prawns in good quantities in the bottom-set gill nets operated in the inshore waters off Sankrubag landing centre. As this species is a large sized one and in great demand by the fishing industry, a detailed observation of this fishery was undertaken during 1981–'84 along the North Kanara coast and the results are presented in this communication.

Fishery

The bottom-set gill nets are employed for catching prawns along this coast during the monsoon period June to August as in other regions of the west coast. The nets are operated from dug-out canoes (6.0–10.3 m in length), each manned by two persons and the period of each fishing trip extends from about 0530 to 1430 hrs. Usually the prawn grounds covered by this fishery extend upto about 2 km from the shore where depth ranges from 6 to 9 m.

The fishery season generally commences with the onset of monsoon and extends for about three months in June, July and August. Peak of the fishery varies from year to year within this period.

Catch and effort: The centre-wise data on total catch, effort and CPUE for the different centres of observation are given in Table 1. At Chendia, *P. merguiensis* occured in the gill net catches during 1981, '82 and '84. The average daily catch per unit effort (CPUE) was worked out to 1.72 kg for these three years. The maximum catch and CPUE were observed during 1984 and 1982 respectively (Table 1). Continuous observations were made at Sankrubag throughout 1981–'84 and the maximum catch and CPUE were recorded during June–July 1982. The average CPUE was 2.85 kg for this centre. Gill nets were not operated at Karwar during 1981 season due to scarcity of prawns but the fishery existed during 1982–'84. Maximum catch of the banana prawn was noticed during July–August, '82, but the CPUE was at its peak during 1983. The average CPUE for the period 1982–'84 was 5.55 kg. Majali recorded the lowest catch and CPUE, the average CPUE for 1983–'84 period being 0.17 kg. The fishery at Ambekodar could be observed during 1984 only. The maximum catch (12,776 kg) with CPUE of 11.83 kg was observed during July at this centre. Taking into consideration the entire fishery of this coast, maximum landing of *P. merguiensis* was recorded at Ambekodar

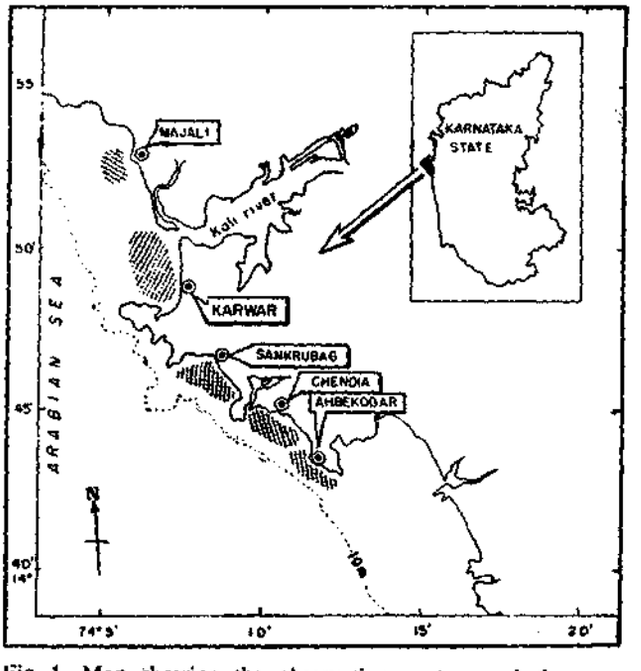

Fig. 1. Map showing the observation centres and the prawn fishing grounds (shaded).

*Prepared by G. Nandakumar, CMFRI, Cochin.

Table 1. *Centrewise details of catch, effort and CPUE of* Penaeus merguiensis *in the gill net fishery from* 1981 *to* '84.

	Season	Estimated No. of units operated	Catch (kg)	CPUE (kg)
1981 Chendia	Jul.	225	326	1.45
Sankrubag	Jun.–Jul.	287	580	2.02
1982 Chendia	Jun.–Jul.	50	1,250	25.00
Sankrubag	Jun.–Jul.	80	2,800	35.00
Karwar	Jul.–Aug.	1,128	6,387	5.66
1983 Sankrubag	Aug.	550	2,339	4.25
Karwar	Jul.–Aug.	374	2,930	7.83
Majali	Jul.–Aug.	2,250	390	0.17
1984 Ambekodar	Jul.	1,080	12,776	11.83
Chendia	Jul.–Aug.	1,430	1,363	0.93
Sankrubag	Jul.–Aug.	1,263	485	0.38
Karwar	Jul.–Aug.	440	1,451	3.30
Majali	Jul.–Aug.	534	94	0.18

during 1984 while the best CPUE was observed at Sankrubag during June–July, '82. The data also indicated that the prawn production was not consistent at any particular centre (Table 1).

Structure of population: Centrewise details on size range and dominant modal values of males and females of *P. merguiensis* are shown in Fig. 2. The total length of this species varied between 111 and 165 mm for males and 106 and 215 mm for females. The size frequency was generally unimodal or bimodal in nature. The bulk of the fishery was supported by the size groups between 130 and 170 mm. Studies on sex ratio in the prawn catches showed the preponderance of females over males in all the centres during 1981–'84 with an exception at Chendia during 1981–'82 when males outnumbered the females. Most of the females observed in the catches did not have mature ovaries.

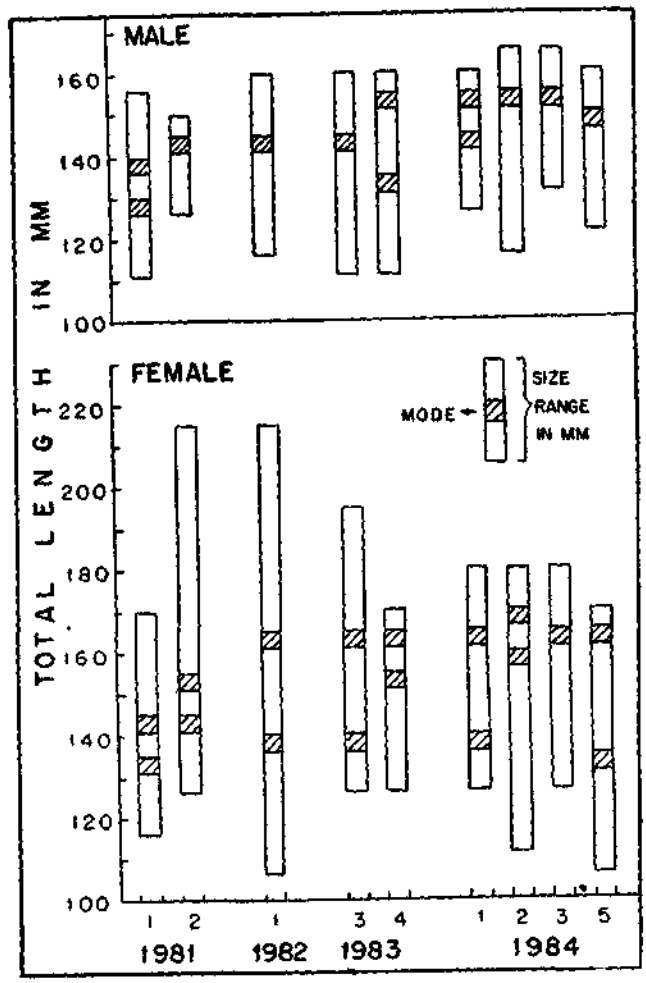

Fig. 2. Size distribution of *Penaeus merguiensis* in the gill net fishery along the North Kanara coast.

1 - Chendia, 2 - Sankrubag, 3 - Karwar, 4 - Majali, 5 - Ambekodar.

Discussion

The present study on the seasonal fishery of *P. merguiensis* along the inshore waters of Karnataka coast during the monsoon period (June–August) reveals some kind of sporadicity of occurrence and schooling behaviour of the banana prawn. It has been established by large-scale tagging experiments that this species is capable of undertaking long range migrations moving even upto 150 km off-shore.

In order to ascertain the possible migratory pattern of *P. merguiensis* along the North Kanara coast an attempt was made to closely follow the spurt in the landings at the different centres between Ambekodar and Majali (Fig. 1) during the season of 1984. It was observed that *P. merguiensis* fishery started around Ambekodar, Chendia and Sankrubag during the first week of July, '84 and the maximum catch was recorded at Ambekodar between 6th and 10th July (12 kg of prawn per unit per day). The prawn catch at Chendia and Sankrubag during the same period was 1–2 kg per unit per day except on one occasion when one boat landed a record catch of 100 kg of banana prawns on

10-7-1984. During the third week of July, a few numbers of prawns alone were caught by gill nets in these centres. The fishery was totally absent at Karwar and Majali until 26-7-1984. Suddenly *P. merguiensis* started appearing in Karwar Bay from 27-7-1984 and the peak fishery was observed between 10th and 15th August, 1984. The fishery was absent at Majali during this period. From the above pattern of occurrence of the fishery at different centres it would appear that *P. merguiensis* might have migrated in shoals from south to north along the coast.

Juveniles of *P. merguiensis* show migrations from backwaters to the coastal waters in Karwar region during January–May. It is possible that juveniles migrating from the backwaters during this period remain in the coastal waters until they attain the adolescent stage and then move out to deeper waters.

Shoaling behaviour and migration of the related species *P. indicus* have been reported earlier, along the southwest and southeast coasts based on the studies on commercial catches . Mark recovery experiments (tagging) have now almost established distant migration of the species along these coasts. Although there is no evidence as to the migratory habits of the banana prawn from the Indian waters, the present observations suggest the possibility of shoaling behaviour and migration of the species along the Karnataka coast. Large scale tagging experiments are necessary to establish this.