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MONSOON PRAWN FISHERY BY INDIGENOUS GEARS ALONG THE MANGALORE COAST

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Introduction

The large scale introduction of purse seines, in the late seventies for catching the pelagic resources, has adversely affected the traditional fisheries by *rampani*, cast net, *kanthabale, pattabale etc.* resulting in their elimination from this coast due to their low catches and poor return. This has compelled practically all fishermen, who had been actively engaged in traditional fishery, to opt for purse seining. However, when all mechanised fishing operations remain suspended during the southwest monsoon period (June-August) along this coast, the indigenous gears are operated for catching prawns, mackerel *etc.* since they fetch attractive prices. The most interesting fact was that these gears generally caught large sized prawns, occasionally in large quantities, from nearshore waters. An appraisal of the prawn fishery by indigenous gears in the monsoon season during 1979-'85 is attempted in the present account.

Fishing methods and season

Other than some subsistance fishery in the estuary, all fishing activities, along the Mangalore coast, remain suspended during the southwest monsoon period due to unfavourable weather conditions. Fishing operations are resumed on a small-scale in July or early August with the cast net operations. This is followed by the operations of gill nets like *kanthabale* and *pattabale.* Although these nets are primarily employed for catching prawns and mackerel, fishes belonging to other groups are also caught in appreciable quantities during this period. In addition, *kairampani* nets (small shore seine) are found to operate at certain centres to catch prawns and miscellaneous fishes. The introduction of *matabala* (small purse seine) in 1984 on a small scale and the subsequent addition in the following years have boosted the prawn landings during monsoon season.

The details of these indigenous gears except *matabala* are given by Prabhu *et al.* (1973) while studying the resources of Ullal in relation to certain environmental factors. *Matabala* is a miniature version of purse seine net, measuring about 240 m in length and 10 - 12 m in width, with a mesh size of 11-18 mm, and operated from two canoes (6-6.5 m in length) fitted with outboard engines. The number of crew members vary from 16 - 30. Like purse seines, these units also engage a canoe for transporting a part of their catch.

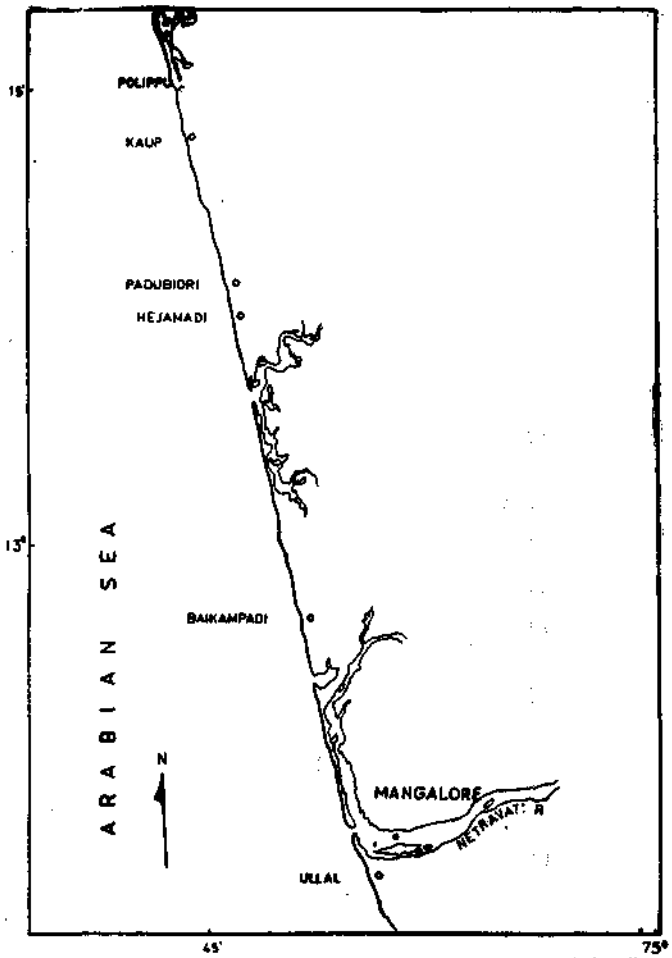

Fig. 1. The Mangalore coast showing the important fish landing centres for indigenous crafts.

These nets are operated all along the Mangalore coast at varying magnitudes during July–September when monsoon is not very active and sea conditions permitted fishermen to venture into the sea. Fishing is generally confined to nearshore waters within 15 m depth.

Although mud bank formations are a regular feature along the Alleppey-Quilon coast of Kerala, such a phenomenon has not been reported from this area. Hence, monsoon fishery is largely dependent on the weather conditions as well as the availability of shoals. Due to this, there has not been any consistency in the monsoon fishery. During the course of the present study, observations were made at Ullal, Bengre, Baikampady, Kulai, Polippu and Hejamadi where fishery was reported. Regular catch statistics were collected from Ullal and Baikampady only (Fig. 1).

Catch trends at Ullal and Baikampady

Prawn landings by indigenous gears generally occurred during July–September. The catch details for Ullal and Baikampady for 1979–'82 are given in Table 1.

Ullal: Fairly good landings of prawns were recorded in 1979 and 1980. There was no catch in 1981, 1983 and 1984. The maximum prawn landings were obtained in 1985. During 1979, the best catches were obtained in August (4,800 kg), whereas, in 1980, the catches were fairly high in July (9,105 kg). In 1982, the maximum prawn catch was recorded in September (3,748 kg), while in 1985, it was in July (61,569 kg).

Although cast net and *kanthabale* were operated at this centre, the former was found to be more productive contributing 90 to 95% of the prawn landings. *Matabala,* since its introduction in 1984 season, has dominated in the monsoon fishery contributing upto 100% of the prawn landings in 1985 at this centre.

Baikampady: The highest catches were recorded in 1981 when 8,780 kg of prawns were netted in a day. In 1979, prawns were caught only in September and the catch was negligible (40 kg). In the following year, prawn landings were fairly good in July and the catch amounted to 940 kg. In 1981, prawns were obtained only in September, while in 1982, landings occurred in August. During 1983 and 1984 seasons, there was

Table 1. *Estimated prawn landings at Ullal and Baikampady by indigenous gears during* 1979–'85

		ULLAL				BAIKAMPADY					
		Kantha-bale	Cast net	*Mata-bala*	Total	*Kantha-bale*	*Kairam-pani*	Cast net	*Patta-bale*	*Mata-bala*	Total
1979	Catch (kg)	43	4,800	—	4,843	—	—	47	—	—	47
	Effort*	200	216	—		—	13	305	59	—	
	C/E**	0.21	22.22	—		—	—	0.15	—	—	
1980	Catch (kg)	948	10,426	—	11,374	—	72	1,119	—	—	1,119
	Effort	353	507	—		67	106	387	15	—	
	C/E	2.68	20.56	—	—	—	—	2.89	—	—	
1981	Catch (kg)	—	—	—	—	—	—	8,750	—	—	8,750
	Effort	—	—	—		—	—	420	—	—	
	C/E	—	—	—		—	—	20.8	—	—	
1982	Catch (kg)	—	1,974	—	—	951	—	9	2,053	—	3,013
	Effort	—	480	—		36	—	49	64	—	
	C/E	—	4.11	—		26.42	—	0.20	32.08	—	
1983 & 1984		No catch			—	No catch					—
1985	Catch (kg)	—	—	61,569	61,569	—	—	—	—	1,540	1,540
	Effort	—	—	119		—	—	—	—	158	
	C/E	—	—	517.39		—	—	—	—	9.75	

* Effort in numbers of units

** C/E - catch per boat per day

no landings by these gears. In the following year, catches were obtained only in July.

Although cast nets, *pattabale* and *kanthabale* were operated, cast nets were found to be more productive contributing up to 95–100% of the annual prawn landings by the traditional gears.

Species composition

Ullal: Metapenaeus dobsoni was the dominant species contributing 100, 99, 100 and 100% during 1979, 1980, 1982 and 1985 respectively. *Penaeus indicus* was caught only during 1980 and formed only 1% of the annual prawn landings by traditional gears.

Baikampady: M. dobsoni was the principal species contributing 80, 100, 100 and 94% of the prawn catch during 1979, 1980, 1981 and 1985 respectively. This species was not available during 1982 at this centre. *P. indicus* catch was negligible during 1979. In 1980 and 1981 also, this species was completely absent. However, in 1982, *P. indicus* catch was fairly high (3,013 kg).

In addition, penaeid prawns like *Parapenaeopsis stylifera* and *Penaeus monodon* were also caught in stray numbers.

Size distribution

In *M. dobsoni*, the size ranging from 63 to 108 mm (modes at 88 and 98 mm) in males, and from 73 to 123 mm in females (modes at 83 and 108 mm) supported the fishery (Fig. 2).

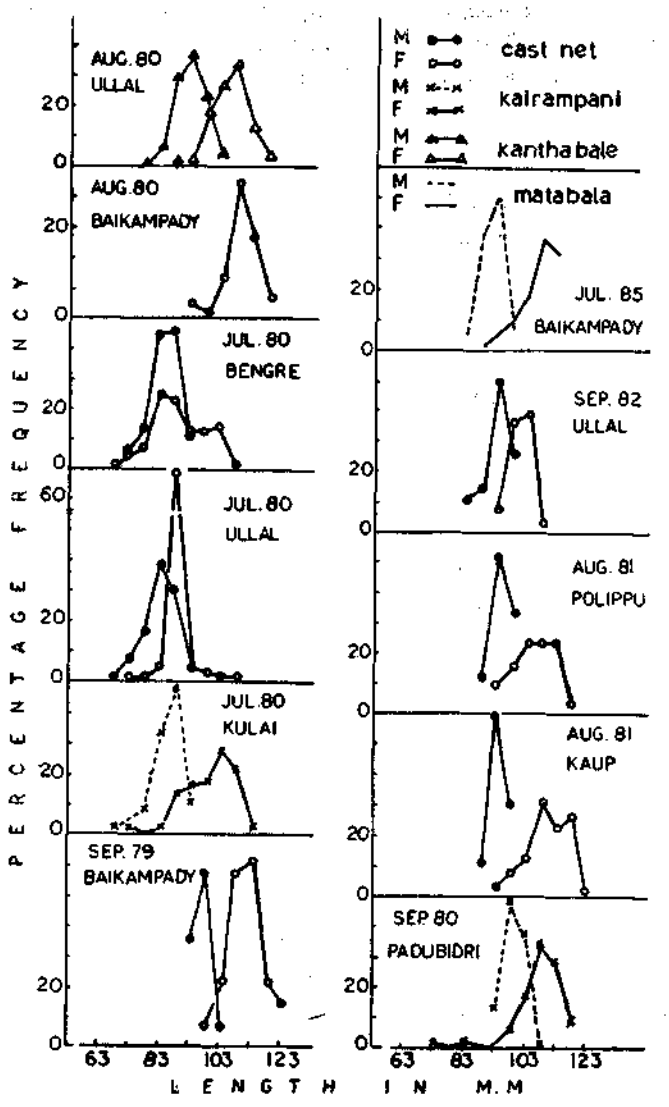

Fig. 2. Size frequency distribution in *M. dobsoni* caught in different indigenous gears at various centres.

Table 2. *Sex ratio distribution in* M. dobsoni *and* P. indicus *at Ullal and Baikampady*

	M. dobsoni				*P. indicus*			
	Baikampady		Ullal		Baikampady		Ullal	
	Male	Female	Male	Female	Male	Female	Male	Female
September, 1979	35.0	65.0 (CN)	—	—	—	—	—	—
July, 1980	52.5	47.5 (SS)	28.2	71.8 (CN)	—	—	—	—
August, 1980	—	100.0 (CN)	34.7	65.3 (KN)	—	—	—	—
September, 1980	59.3	40.7 (SS)	—	—	42.1	57.9 (KN)	—	—
August, 1981	20.4	80.0 (CN)	—	—	—	—	—	—
August, 1982	—	—	—	—	42.3	57.7 (PN)	—	—
September, 1982	—	—	50.0	50.0 (CN)	—	—	—	—
July, 1985	74.2	25.8 (MT)	38.2	61.8 (MT)				

CN – Cast net; SS – *Kairampani* net; KN – *Kanthabale;* PN – *Pattabale;* MT – *Matabala.*

In *P. indicus*, the size ranged from 133 to 163 mm (modes at 143 and 158 mm) in males, and from 138 to 178 mm (modes at 153 and 168 mm) in females (Fig. 3).

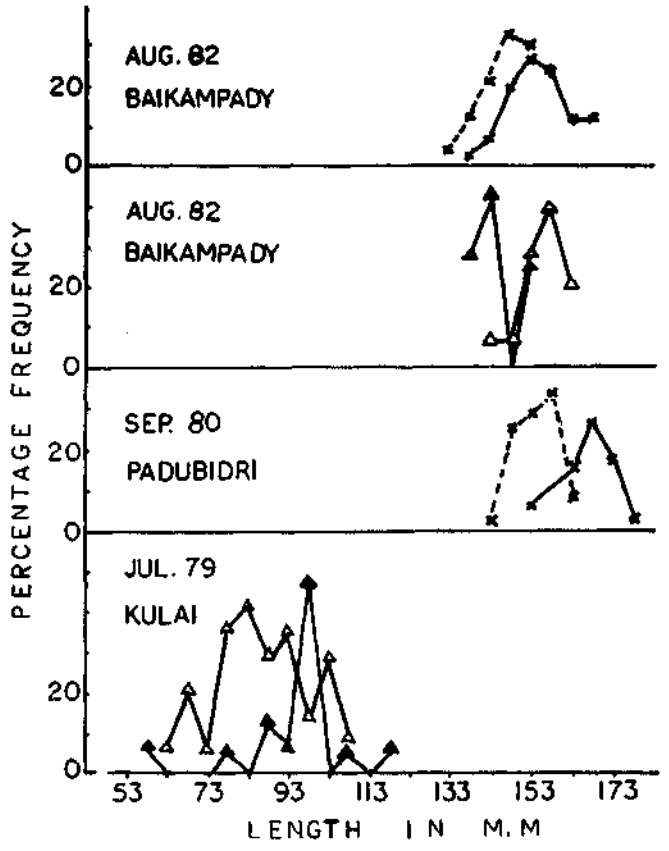

Fig. 3. Size frequency distribution in *P. indicus* caught in different indigenous gears at various centres.

However, in July 1979, smaller sizes ranging from 58 to 118 mm in males and from 63 to 108 mm in females were found to occur in the fishery at Kulai.

It is striking to note that the monsoon fishery was supported mainly by large sized prawns of *M. dobsoni* and *P. indicus*. There was no marked variation in the sizes of these prawns obtained in different gears at a particular centre during the same period. However, marginal variations were noticed in the size of *M. dobsoni* in the same gear at different centres during the same period.

Sex ratio and maturity

Overall sex ratio indicated that females out-numbered males in *M. dobsoni* and *P. indicus*. In *M. dobsoni*, preponderance of females was very high in cast nets, whereas, males were more in *kairampani* nets (Table 2). In *matabala*, females were more at Ullal, but males dominated in the catch at Baikampady.

It is also seen that most of the females of *M. dobsoni* were in the spent condition.

General Remarks

The monsoon fishery by traditional gears is particularly significant since it gives certain amount of livelihood to fishermen at a time when all mechanised fishing activities remain suspended all along this coast. It is also interesting to note that the fishery was mostly supported by large sized prawns of *M. dobsoni* and *P. indicus*. Since it is off season, and prawns, generally, are of large size, they fetch exhorbitant prices. The introduction of *matabala* in 1984 and the subsequent addition during the following seasons, have boosted the prawn landings to a large extent, along this coast.

During June-August, there is a gap in the biological data collected from the mechanised trawlers due to the suspension of mechanised fishing during this period. The indigenous fishery during the monsoon season is immensely helpful in providing some valuable data on the size composition, sex ratio, maturity *etc.* of *M. dobsoni* and *P. indicus* during this period, thereby enriching our knowledge on the resource characteristics of these prawns.

The author is grateful to Shri M. S. Muthu, Scientist S-3 and Head, Crustacean Fisheries Division, Central Marine Fisheries Research Institute, Cochin for going through the manuscript and suggesting improvements.

ERRATUM

The species of cat fish *Arius thalasinus* given in article 6 of MFIS 73, page 14, July, 1987 may be read as *Tachysurus dussumieri*.

— Editors