

## A NOTE ON THE FISHERY OF THE SWIMMING CRAB *PORTUNUS PELAGICUS* (LINNAEUS) FROM TUTICORIN BAY

### ABSTRACT

The fishery of the swimming crab *Portunus pelagicus* (Linnaeus) from Tuticorin Bay was studied during the period 1991 - 93 and the average annual landing of the crab was estimated at 17.8 t. The fishery was dominated by smaller crabs with carapace width ranging from 91 to 115 mm in male and from 81 to 105 mm in female. Females were predominant in the catches forming nearly 73%. Berried females were observed on during the period 1992-93 with their composition ranging from 1.7 to 12.2%.

THE SWIMMING crab *Portunus pelagicus* (Linnaeus) is widely distributed in the Indo-Pacific waters (Chhappargar, 1957 and Motoh, 1980). In India, this species contributes to the commercial fishery in both east and west coasts supporting the fishery significantly at certain places (Rao *et. al.*, 1973). Along Tuticorin coast the resource of this species is exploited by three types of gears namely, trawlnet, bottom-set gillnet and *thallumadi*. Out of these three gears, the contribution by *thallumadi* is only small as the gear is operated within the bay area mainly for exploiting the prawn resources. However, at times good catches of crabs are also landed by *thallumadi* along with prawns. The crab fishery by *thallumadi* was observed during the years 1991 - '93 and data on various aspects of the fishery *viz.*, catch, size distribution, sex ratio *etc.*, were collected and are presented in this note.

The North Landing Centre of Tuticorin, where the crabs captured by *thallumadi* were landed, was visited weekly once and the quantity of crabs landed on the observation day was recorded from which the landing for the month was estimated. The size of the crab (carapace width), the sex and the presence of ovigerous females were recorded in the landing centre itself. A detailed description of *thallumadi* has been given by Manickam *et. al.*, (1989). The craft used was plank-built boat. The fishing operation was carried out in the Tuticorin bay itself at a depth range of about 5 to 10 metres. As sails and wind energy were used for the operation of the net the time of fishing varied from season to season depending upon the intensity of the wind.

The crab catches landed by *thallumadi* consisted of almost exclusively a single species of portunid crab namely, *Portunus pelagicus* with rare and sporadic occurrence of *P. sanguinolentus*. The estimated landing of *P. pelagicus* during the years 1991-'92 and 1992-'93 varied widely from 0.07 t in June to 7.8 t in August and from 0.2 t in April to 4.7 t in June respectively. The landing was good exceeding 3 t in July and August during 1991-'92 and in June and September during 1992-'93. The monthly catch rate recorded during the two year period ranged from 0.1 kg in June to 6.7 kg in August and from 0.3 kg in April to 4.8 kg in June respectively (Table 1).

The fishery was represented mostly by under-sized crabs. During the two year period of observation the size of the male crab ranged between 55 and 150 mm with dominant groups in the size range of 91-115 mm. In the female the size ranged between 48 and 150 mm with dominant groups in the size range of 81-105 mm. The fishery was comprised of only smaller crabs measuring less than 100 mm in May and February during 1991-'92. Larger crabs measuring more than 140 mm in carapace width were recorded during only one month *i.e.* in July (Table 2). On the otherhand, the crabs landed during the subsequent year were of larger size as can be seen from the annual mode recorded during that period for both the sexes (Table 3).

Females were predominant in the fishery constituting nearly 73% of the population. Month-wise sex ratio showed that the

TABLE 1. Estimated effort (unit), catch (kg) and catch rate (kg/unit) of *P. pelagicus* landed by *thallumadi* at Tuticorin during the years 1991-'93.

Months	1991-'92			1992-'93		
	Effort	Catch	Catch rate	Effort	Catch	Catch rate
April	744	464	0.6	740	200	0.3
May	833	720	0.9	630	854	1.4
June	1157	72	0.1	980	4744	4.8
July	1320	3771	2.9	770	704	0.9
August	1175	7839	6.7	750	2115	2.8
September	700	1248	1.8	910	3105	3.4
October	1050	1035	1.0	836	1398	1.7
November	- No data -			- No data -		
December	1100	1680	1.5	588	1494	2.5
January	792	756	1.0	720	609	0.8
February	700	485	0.7	500	540	1.1
March	945	1128	1.2	680	630	0.9
Annual	11,386	19,198	1.7	8,104	16,393	2.0

TABLE 2. Size ranges and dominant size groups (in mm) in *P. pelagicus* landed by *thallumadi* at Tuticorin during the years 1991-'92.

Months	Male			Female		
	Min	Max	Dominant mode	Min	Max	Dominant mode
April	79	122	81-85	72	132	91-95
May	72	92	—	71	132	91-95
June	83	102	91-95	71	103	81-85
July	57	142	96-100	53	126	96-100
August	55	125	91-95	50	121	101-105
September	72	110	96-100	62	120	76-80
October	80	104	—	85	115	81-85
November	- No data -					
December	70	128	91-95	72	120	101-105
January	65	112	76-80	52	132	71-75
February	66	86	66-70	50	133	86-90
March	60	129	76-80	70	132	96-100
Annual	55	142	91-95	50	133	81-85

TABLE 3. Size ranges and dominant size groups (in mm) in *P. pelagicus* landed by *thallumadi* at Tuticorin during the year 1992-'93.

Months	Male			Female		
	Min	Max	Dominant mode	Min	Max	Dominant mode
April	71	114	101-105	71	121	101-105
May	88	130	111-115	71	119	96-100
June	90	145	121-125	83	145	111-115
July	68	125	106-110	78	135	91-95
August	75	138	91-95	48	140	101-105
September	80	145	111-115	72	130	121-125
October	80	150	111-115	65	150	101-105
November	— No data —					
December	70	144	91-95	65	142	91-95
January	85	137	106-110	80	122	96-100
February	63	125	71-75	65	130	101-105
March	60	120	—	60	120	71-75
Annual	60	150	111-115	48	150	101-105

TABLE 4. Sex ratio and proportion of berried females (in percentages) in *P. pelagicus* landed by *thallumadi* at Tuticorin during the years 1991-'93.

Months	1991-'92			1992-'93		
	Male	Female	Berried females	Male	Female	Berried females
April	15.6	84.4	—	25.5	74.5	—
May	5.7	94.3	—	18.0	82.0	—
June	42.9	57.1	—	40.0	60.0	12.2
July	40.0	60.0	—	32.7	67.3	—
August	35.6	64.4	—	24.4	75.6	8.6
September	19.3	80.7	—	32.7	67.3	5.7
October	28.6	71.4	—	24.1	75.9	2.6
November	— No data —					
December	12.1	87.9	—	29.8	70.2	1.7
January	19.6	80.4	—	34.0	66.0	—
February	27.3	72.7	—	26.0	74.0	—
March	34.0	66.0	—	6.0	94.0	—
Annual	27.7	72.3	—	27.4	72.6	3.9

composition of female ranged between 57.1% and 94.3% during 1991-'92 and between 60.0% and 94.0% during 1992-'93. Ovigerous females were not recorded in the catches during 1991-'92. On the otherhand, ovigerous females were observed during the subsequent year forming on an average 3.9% of the female population. The maximum proportion of berried female was observed in June. However, it was totally absent in the catches in July. The proportion of berried female was 8.6% in August. It declined to 5.7% in September and then to 2.6% in October. The minimum proportion of 1.7% was recorded in December. (Table 4).

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The fishery of *P. pelagicus* from Tuticorin bay is of low magnitude as revealed by the estimated catch landed during the period 1991-'93. It contributed to the commercial fishery only during two months viz. July and August during 1991-'92 and June and September during the subsequent year. During the rest of the months its contribution to the fishery was almost negligible. Nevertheless, it may be mentioned here that the fishermen operated *thallumadi* in the bay area mainly for exploiting the prawn resources and the landing of the crab alongwith prawn catches was only incidental, which at times landed in large numbers and supported the commercial fishery.

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#### REFERENCES

- GHHANGAR, B. F. 1957. *Contribution No. 1.* Taraporavala Marine Biological Station.
- MOTOH, H. 1980. Field guide for the edible crustacea of the Philippines. SEAFDEC, Philippines.
- MANICKAM, P. E. S., M. R. ARPUTHARAJ AND P. VEDAVYASA RAO 1989. *CMFRI Bull.* 44 : 137-145.
- RAO, P. V., M. M. THOMAS AND G. S. RAO 1973. *Proc. Symp. living resources around India.* Spl. Publ. CMFRI. 581-591.

### A STUDY ON PINNOTHERES CRABS ASSOCIATED WITH NEWLY RECORDED *SOLETELLINA VIOLACEA* (Lam.) AND *PLACUNA PLACENTA* (Linn.)

#### ABSTRACT

The present paper deals with association of *Pinnotheres* crabs as commensalist in *Soletellina violacea* and *Placuna placenta*. The sex-wise percentage composition of *Pinnotheres maculatus* (Say) varies in *Soletellina*. Both the sexes of *Pinnotheres maculatus* were highest in the month of July (16.12%) and highest percentage of female crabs noticed (63-70%) during January to March. In *Placuna placenta* the percentage of female crab was highest in December (70.0%) and lowest in July (25.0%).

COMMENSALISM means 'eating of the same table'. It is thus a loose type of relationship and is not an obligatory one. The relationship between the hermit crab *Eupagurus prideauxi*

and the anemone *Adomisia palliata* is an obligatory one, since neither of the partners will survive alone. It is more or less an intimate relationship during which the commensal