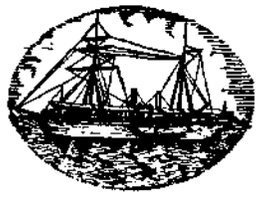
SYMPOSIUM ON CRUSTACEA

PART IV



MARINE BIOLOGICAL ASSOCIATION OF INDIA

MARINE FISHERIES P.O., MANDAPAM CAMP

INDIA

PROCEEDINGS

OF THE

SYMPOSIUM ON CRUSTACEA

HELD AT

ERNAKULAM

FROM JANUARY 12 TO 15, 1965

PART IV

SYMPOSIUM SERIES 2

MARINE BIOLOGICAL ASSOCIATION OF INDIA

MARINE FISHERIES P.O., MANDAPAM CAMP

INDIA

ON THE PRAWN RESOURCES OF KARWAR REGION*

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ABSTRACT

The scope for increased exploitation of the prawn resources is envisaged in the recent exploratory fishing operations by the Indo-Norwegian vessels during September 1963 to May 1964 in the Karwar region. *M. affinis, M. dobsoni* and *P. stylifera* are the important species occurring in the trawl fishery. From the high average catch rates in some of the months, it appears that the prawn fishery is comparatively better in September to February. The highest figures for catch per hour of trawling between 8–10, 10–15 and 15–20 fathoms respectively were 3·48 kg., 17·61 kg. and 12·56 kg. thus pointing to the comparatively better catches of prawns in regions between 10–15 fathoms. Detailed areawise analysis has been made of the catches in trawling operations off Karwar with special reference to prawns.

PRAWNS and other crustaceans constitute on an average about 17% of the total annual catch of food materials from our seas. The statistics of the landings collected at Karwar (North Kanara) during the last few years showed that prawns accounted for only a very small percentage, since fishing was restricted to regions upto about five fathoms. There was however unprecedented heavy prawn fishing in the Karwar Bay immediately after the South-west monsoon of 1962.

Experimental fishing at Karwar from September 1963 was carried out for a proper and scientific recording of the fish distribution and fishery potential of the area. The entire area was divided into one mile squares upto about 20 fathoms and a scheme was drawn up for sampling the area in a systematic manner throughout the fishing season. The procedure adopted was to have a minimum of two hauls of one hour duration in every month from each block. "INP 167", "M 4" and "Karwar No. 1" commenced exploratory fishing in October, September and November respectively. The area operated by these three vessels were within 10 fathoms, 10–15 fathoms and 15–20 fathoms respectively. The present report relates to the data collected during September 1963 to May 1964 with special reference to prawn catches. Since prawns remain close to the bottom or partly buried in mud, it was felt that fishing with trawl nets could ensure efficient capture and hence shrimp trawls were used throughout the period of observation.

The total quantity of prawns landed at Karwar during September 1963 to May 1964 was 14,026 kg. comprising about 6% of the total trawl catches. The fishing effort put in was 1,124·30 hours and the average catch rate of prawns per hour of trawling for the period worked out to 12·47 kg. Miscellaneous fishes formed the majority of the catch (82·08%) and prawns formed the next important category, the third in the order of abundance was Elasmobranches (4·19%). The monthly percentage of prawns in the total trawl catch fluctuated between 3–14% during the period under report.

The monthwise prawn landings recorded at different depths by the three vessels together with the catch per hour of trawling are shown in Table 1. The catch per hour of trawling (catch per unit of effort) is a measure of the available stocks in the sea and it is this parameter which gives the most important clue for developing a suitable conservation and management policy for any fishery (Ricker, 1940). It is this same criterion (and not the total catch) that is valid in comparing the performance of different vessels also (Hickling, 1946 *a* and *b*).

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TABLE I

Details of prawn landings by the mechanised vessels of the INP from September 1963 to May 1964

Name of the vessels ..	"INP 167"		"M 4"		"Karwar No. 1"		All vessels combined	
Range of Operation (fathoms) ..	8–10		10–15		15–20		8–20	
Months	Fishing effort in hrs.	c.p.h. of prawns	Fishing effort in hrs.	c.p.h. of prawns	Fishing effort in hrs.	c.p.h. of prawns	Fishing effort in hrs.	c.p.h. of prawns
September 1963 ..	..	..	23·15	..	..	..	23·15	..
October 1963 ..	38·15	..	48·00	..	..	..	86·15	..
November 1963 ..	52·00	7·69	55·00	31·09	16·00	4·37	123·00	17·72
December 1963 ..	27·45	1·44	60·00	19·66	53·30	6·20	141·15	10·98
January 1964 ..	34·15	0·73	68·00	11·97	55·00	6·30	157·15	7·54
February 1964 ..	21·00	14·76	56·00	42·50	41·30	30·07	118·30	33·23
March 1964 ..	62·00	2·09	66·00	13·26	68·30	18·54	196·30	11·58
April 1964 ..	59·30	9·24	56·00	18·12	64·00	7·01	179·30	11·22
May 1964 ..	23·00	1·08	45·00	9·57	31·00	13·70	99·00	8·89
Total ..	317·45	3·48	477·15	17·61	329·30	12·56	1,124·30	12·47

A close study of the Table reveals the following points: (1) All the three vessels under operation netted prawns from November 1963 to May 1964. (2) The catch rate for prawns during November was 17·72 kg. During December and January a decline in the catch rate was noticed with 10·98 and 7·54 kg. respectively. The maximum catch was recorded in February when the catch rate rose to 33·23 kg. After February, the catches dwindled and by May it reached the minimum the catch rate being 8·89 kg. (3) It appears that the prawn fishery for the September–February period was much better than that for the March–May period, the average catch rate for these two periods being 13·63 kg. and 10·88 kg. respectively. (4) All the three vessels recorded the highest figures of catch per hour of trawling during February 1964, *i.e.*, "Karwar No. 1" (15–20 fathoms) =30·07 kg. "M 4" (10–15 fathoms) = 42·50 kg. and "INP 167' (9–10 fathoms) = 14·76 kg. (5) Indications are that the prawn catches are comparatively good in regions between 10–15 fathoms. The figures for catch per hour of trawling between 8–10, 10–15 and 15–20 fathoms respectively were 3·58 kg., 17·61 kg. and 12·56 kg. (6) Towards the close of the season, *i.e.*, May 1964 the catch rate in the 15–20 fathom region showed an increase with 13·70 kg. than the previous figure in April (7·01 kg.). Whether this tendency is due to the migration of prawns to deeper waters is a question that can be answered only after continuous observations for a few years.

Metapenaeus affinis, *Metapenaeus dobsoni* and *Parapenaeopsis stylifera* are the important species that supported the trawl fishery. Based on the analysis presented, it can be presumed that the prawn beds of this area are likely to be situated in regions between 10–15 fathoms. Reference may be made here to the observations recorded earlier regarding the off-shore prawn fishery at Ernakulam that the 6–12 fathom area was found to be most productive with two distinct zones, 6–8 fathom area for *M. dobsoni* as a predominant species and 9–12 fathom with *M. affinis* predominating. The present analysis has revealed that Karwar area has proved to be an important prawn trawling ground of this coast. A point that should be stressed in this connection is that the data presented are based on exploratory fishing and not on intensive commercial fishing.

Fishing with mechanised vessels at Karwar has yielded encouraging results. A total catch of 2,36,604 kg. were netted by trawl net during the nine-month period from September 1963 to May 1964 with an average catch of 210·59 kg. per hour of trawling.

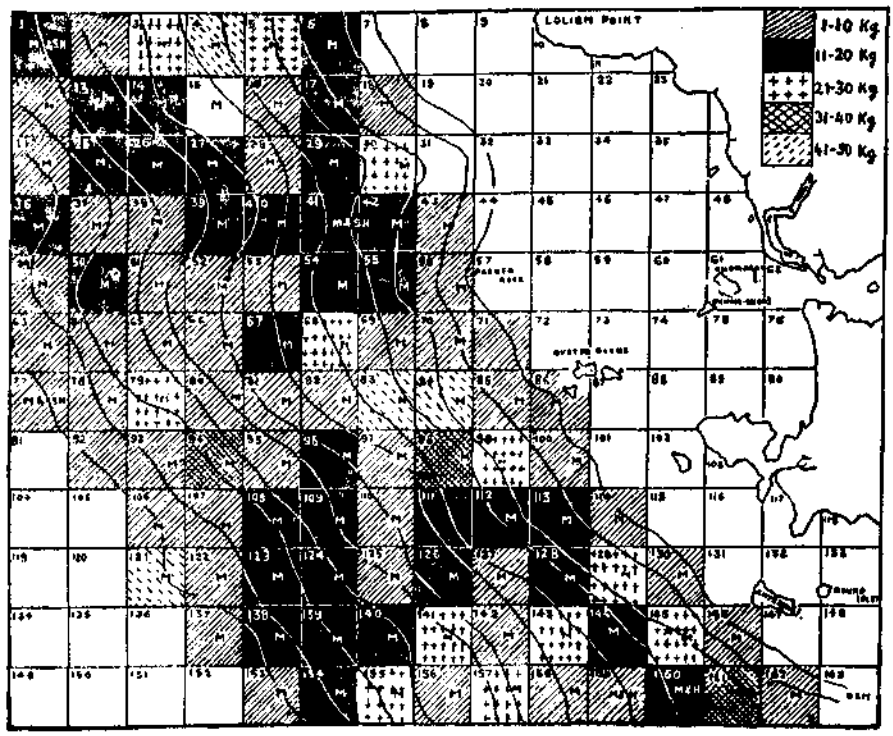

FIG. 1. Catch per hour of trawling of prawns at Karwar from September 1963 to May 1964.

Based on the data obtained, an attempt has been made to find out prospective good fishing areas which can be profitably fished. Text-Fig. 1 represent the catch per hour of trawling for prawns in the different areas of observation during September 1963 to May 1964. Since the data relate to observation for only one season, 1963/1964 this report is essentially preliminary in character. However, it is hoped that the data presented here will stimulate more intensive exploitation of the prawn resources of this area in the years to come. Observations carried out for a minimum number of at least five to six years is required for arriving at any positive conclusions.

The author is thankful to the Indo-Norwegian Project authorities at Karwar for placing at his disposal all the log sheets of the different vessels and also for giving him facilities to go on board the vessels for examining the catches.

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