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NEW GROUNDS FOR DEEP SEA PRAWN EXPLORED OFF TUTICORIN*

Changing pattern of fishing has been witnessed in Tuticorin area in the recent past. In early seventies small mechanised trawlers were introduced at Tuticorin for seasonal prawn fishing. On an average, 240 t of prawns and 1,650 t of fish were landed during that period by the mechanised trawlers. (S. Mahadevan *et al.*, 1988, *Mar. Fish. Infor. Serv., T & E Ser.*, No. 84). The post seventies witnessed a significant change in the quality and quantity of landings. The mechanised trawling has received major attention in the last decade due to the increasing demand for prawns by the export industry. Eventhough the catches of prawn contribute less than 13% of the annual average trawl catch, they realise better return upto 75%. In view of this, trawl fishery has become largely dependant on the availability of prawns.

Prawn fishing in this area is mostly carried out by small mechanised boats of size upto 14 m length, operating two or four seam shrimp trawls in the coastal waters upto 100 m depth. These vessels carry out daily fishing cruises, starting from the base early in the morning and returning before 2200 hrs at night. This type of trawling operations are carried out almost throughout the year.

In order to get better prawn catch, fishermen tend to search out new fishing grounds as and when the abundance of prawn declined in the regular fishing ground. Declining prawn catch and the fall in price for other fish during November '89 at Tuticorin stimulated a few trawl owners to undertake trawling in some new fishing grounds. Few daring fisherfolk who had proper financial support and minimum infrastructure facilities have opted to go for deep sea fishing during November, '89 - January, '90 for the first time in the zone Lat 8° 47' 14" N Log 78° 40' 23" E (Fig. 1).

This has paved the way for the rest to know about the large fishery potential of all regions of the coastline beyond the traditional coastal fishing areas especially in the context of exploitation of the resources of the Exclusive Economic Zone.

Eight to fifteen numbers of deep sea trawlers were operated during the season, November, '89 - January, '90 in the depth of 250 - 400 m and the results are highlighted here.

Wooden trawlers of 14 m and above in size fitted with Leyland engine with 6 cylinders and 110 horse power were engaged for the deep sea fishing. The structure of these trawlers is given in Table 1.

TABLE 1. *Salient features of a deep sea trawler*

Over-all length (m)	:	14.5 - 16.5
Breadth (m)	:	4 - 5
Draft (m)	:	2.15
Horse power of engine	:	110
Type of engine	:	Ashok Leyland
Number of cylinders	:	6
Gross tonnage	:	25 - 30
Crew complement	:	7 - 9
Fish hold capacity (t)	:	5 - 7
Type of net	:	4 seam shrimp trawl
Length of head rope (m)	:	750 + 750
Cod end mesh size (mm)	:	30
Weight of otter board (kg)	:	75
Trawling speed in knots	:	3.0

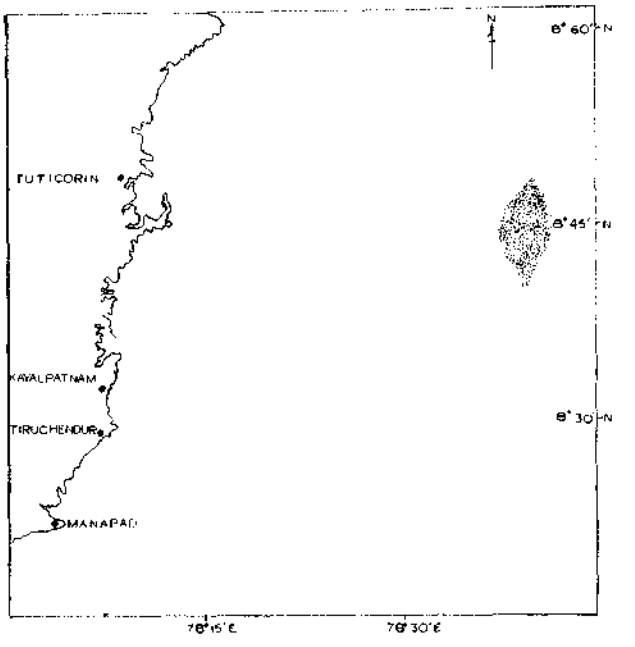

Fig. 1. Position of potential ground for deep sea prawn.

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As these boats are to be navigated to a long distance they need some additional financial help to procure the net materials (Rs. 6,000/-) extra wire rope (Rs.16,000/-) and daily diesel cost (Rs. 1,000/-). M/s. King Fisheries, leading seafood exporters, Quilon, Kerala had financed Rs. 20,000/- to 25,000/- to these boat owners. In turn the deep sea prawn catches were sold to the same firm for processing.

These trawlers with a man power of 7 - 9 in each vessel used to leave the base around 0500 hrs. in the morning and return around 2200 hrs in the night. On enquiry, it is understood that roughly it takes 4 - 5 hours to reach the fishing ground covering a distance of 60 80 km from the shore. Local fishermen call this fishing ground as *Dubai Kadal* signifying the potentials. The sea bottom in this area is mostly muddy and the depth of operation ranged between 250 - 400 m. Speed of the engine is maintained between 1600 and 2000 RPM. On an average, daily 2 - 3 hauls were made with two hours duration per haul. The entire catch was brought to the shore except crabs which were discarded into the sea on some occasions due to its poor demand in the market. Prawn catch was procured by the financing agents of the trawler. Major part of fish catch was sold as lot to fish meal plants. Roughly about 10% of the fish catch was sold for local consumption. Gross income of the effort is shared by boat owner and crew in the ratio of 65:35, after adjusting the payment towards incidental charges, wages to labour, diesel charges *etc.*

A total of 211.425 t of deep sea prawns mainly comprised of *Solenocera hextii* (95%), *Penaeopsis jerryi* (3%), *Metapenaeopsis andamanensis* (1%) and *Parapandalus spinipes* (1%) were landed during the three months period and realised an amount to the tune of Rs.19,02,825/- by selling them at the rate of Rs. 9/- per kilogram. The details of the landings are given in Table 2.

Of the total catch, 58.3% was supported by prawn and 32.9% was contributed by fish, the rest being represented by crabs (*Macrocheira* sp.), lobsters (*Puerulus* sp.), gastropods and miscellaneous fish. While prawn catch was represented by *Solenocera hextii, Penaeopsis jerryi, Metapenaeopsis andamanensis* and *Parapandalus spinipes*, the fish catch was constituted by snake mackerel, tromatids, Rattle fish, Lizard fish, trumphet sea robin, fishing frog, Angler fish, eels and

TABLE 2. *Estimated catch composition and catch per unit effort (in kg) for the period from November, 1989 - January, 1990*

Centre : Tuticorin Fishing Harbour Gear : Deep Sea Trawl

Month	November '89		December '89		January '90		Total	
No. of days of operation	19		*5		22		46	
No. of Units	158		68		242		468	
	catch	cpue	catch	cpue	catch	cpue	catch	cpue
Prawns	70,981	449.2	27,725	407.7	1,12,719	465.7	2,11,425	451.7
Fish	43,716	276.6	13,525	198.8	62,225	257.1	119,466	255.2
Crabs	5,630	35.6	5,520	81.1	10,784	44.5	21,934	46.8
Lobsters	2,141	13.5	743	10.9	2,284	9.4	5,168	11.0
Gastropods	937	5.9	635	9.3	15.35	6.3	3,108	6.6
Miscellaneous	212	1.3	253	3.7	1214	5.0	1,679	3.5
Total	1,23,617	382.3	48,401	711.7	1,90,762	788.2	3,62,780	775.1

*Due to the dispute prevailed between trawl owners and traditional fishermen, entire trawling operations were suspended for about three weeks.

Brotulas. A maximum catch was recorded in January, '90 with a high CPUE at 465.7 kg.

Random sampling was made for size distribution of the prawn in the catch. The sizes were recorded between 50 and 105 mm with a dominant size at 85 mm weighing 4.2 g.

A fall in the trend of catch was noticed in this new ground during the last week of January, '90 and consequent to this, most of the trawlers changed their fishing ground towards the usual inshore coastal waters of Tuticorin. Obviously enough, better catches of other prawns and fishes were noticed and the fishermen get a good margin of profit with minimum input.

The local fishermen should be applauded for exploring this new ground and evolving this ingenious method of catching the hitherto unexploited resources, that too with the minimum gadgets. This maiden attempt of the clever fisherfolk and the promising results of the deep sea trawling may open a new horizon to bring many more trawlers to ventrue for deep sea fishing for a still longer period to reap a bountiful catch of prawns and fish in the years to come.