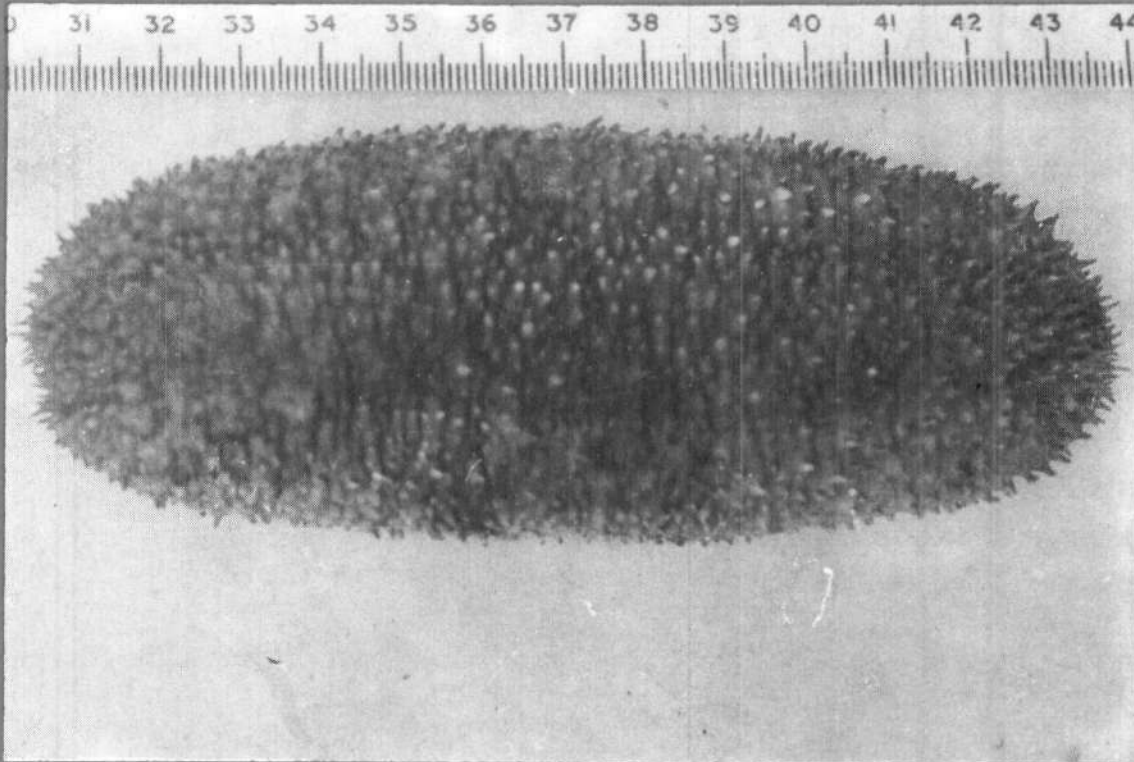




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EMERGENCE OF HAND JIGGING FOR CEPHALOPODS ALONG TUTICORIN COAST*

Cephalopods, locally known as 'Kanava' have emerged in recent times as one of the prime foreign exchange earners in India. Till late eighties the entire cephalopod landings were made by trawlers and partly by shore-seine as a by-catch. Though the hand jigging fishery has been developed during the seventies it gained its momentum during the eighties only. After witnessing its successful operation at Vizhinjam and Kanyakumari the fishermen have initiated hand jigging along the Tuticorin coast and Gulf of Mannar during the early nineties.

The common jigs which are under constant operation are 'Nangoora thoondil' and 'Disco thoondil'. The design and operation of the former have been described earlier by Prabhakaran Nair (*CMFRI Bull. No. 37: 152-156, 1986*). The latter one is a Japanese made jig (Fig. 1). These jigs are made of bakelite moulding to resemble a live shrimp which at the time of operation lures the cuttle fish/squid. The eyes in the lure protrude like those of a live shrimp and brightly coloured feathers have also been attached on either side of the lure. The lures are brightly coloured in different shades ranging from blue, green, pink, orange, yellow and red on the dorsal surface but slightly diminished in colour on the ventral surface (Fig. 1). A small lead weight is attached to the lower part of the lure so that it maintains the jig in a proper dorso-ventral position. The pointed recurved hooks, usually numbering from 16 to 18 in two rows are attached in tail region.

The jigs are operated at depths ranging from 30 - 50 m upto a distance of 12 km from shore, since sandy bottom and areas where sea grasses grow luxuriantly are found to harbour squid and cuttle fish in good abundance, such areas are preferred by the fishermen for jigging.

Each jig is tied to nylon wire rope with length ranging from 6 to 15 m and are rolled on a wooden



Fig. 1. Japanese Jig.

frame reel or spindle. Fishing is carried out both by *vallams* with 4 - 5 persons and catamarans with 3 - 4 persons. They leave the shore before sun rise and return before sun set. After reaching the fishing ground the cephalopods are spotted, then

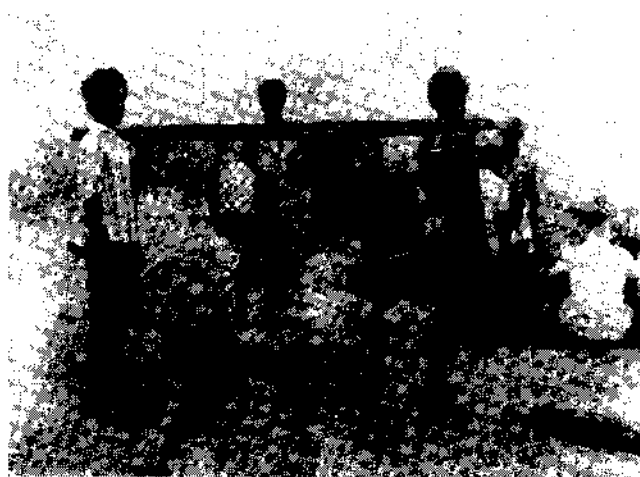


Fig. 2. Fisherfolk with jigs and scoop net.

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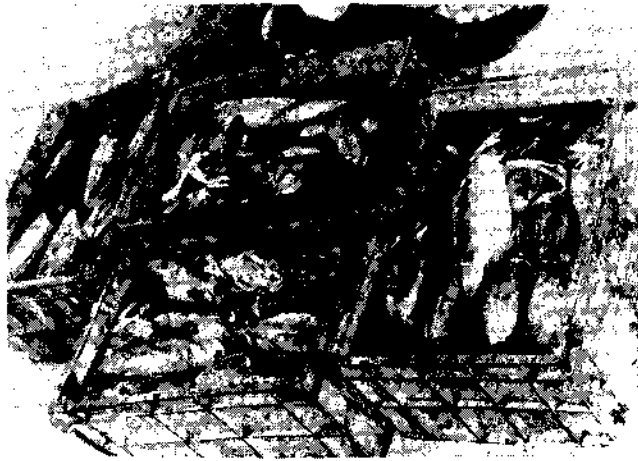


Fig. 3. Cephalopod catch kept ready for transportation.

the jigs are gently thrown towards them and are slowly drawn towards the boat. The squids and cuttle fish are attracted by the movement of the brightly coloured shrimp shaped lure and catch them, when they get hooked. They are then gently removed and lifted up with the help of a scoop net. The difference between 'Nangoora thoondil' and 'disco thoondil' is that the former one is operated with bait, and the later one is operated without bait. The 'disco thoondil' costs between Rs. 100 and 200 per piece and is available in the local market.

Fishermen belonging to Kanyakumari coast migrate to Tuticorin during cephalopod fishing season. The fishing season spreads out in two phases. First phase commences in December and ends in April - May and the second phase falls between July and September. As the fishery is lucrative, now - a - days this phenomenon has drawn many fishermen to get engaged themselves in cuttle fish fishery. This kind of fishery has spread out to other fishing villages such as Tharuvaikulam and Kayalpatnam.

An estimated 48.5 t, 22.3 t, 45.2 t and 40.1 t of cephalopods were landed during 1990, '91, '92 and '93 respectively (Table 1). More than 90% of the catch was constituted by a single species *Sepia pharonis* and the rest by *Loligo* spp. Mantle length and weight of *S. pharonis* were collected randomly at landing centre. Size of *S. pharonis* varied between 160 mm and 410 mm with dominant mode at 230 mm, 280mm, 320 mm and 370 mm (Table 2). As much as 9.8% of the cuttle fish catch composed of 280 mm size group formed the most dominant commercial size. The weight of *S. pharonis* ranged from 0.52 to 4.5 kg per specimen.

TABLE 1. Month-wise estimated effort, catch and CPUE of cephalopods constituted mainly by *S. Pharonis* hooked in jigs during 1990-'93

Month	1990			1991			1992			1993		
	Units	Catch (kg)	CPUE	Units	Catch (kg)	CPUE	Units	Catch (kg)	CPUE	Units	Catch (kg)	CPUE
Jan.	559	6,988	12.5	652	6,316	9.7	662	5,000	7.6	784	9,800	12.5
Feb.	627	10,713	17.1	370	3,370	9.1	852	7,884	9.2	660	4,235	6.4
Mar.	546	2,985	5.5	36	156	4.3	937	8,187	8.7	520	3,224	6.2
Apr.	198	1,130	5.7	-	-	-	540	3,456	6.4	416	1,248	3.0
May	170	1,295	7.6	-	-	-	160	736	4.6	-	-	-
Jun.	-	-	-	-	-	-	-	-	-	-	-	-
Jul.	252	5,484	21.8	-	-	-	576	3,648	6.3	-	-	-
Aug.	382	4,298	11.3	420	3,830	9.1	864	8,628	10.0	192	672	3.5
Sep.	588	10,188	17.3	600	6,840	11.4	240	600	2.5	144	1,488	10.3
Oct.	-	-	-	-	-	-	-	-	-	260	2,600	10.0
Nov.	-	-	-	-	-	-	-	-	-	788	10,290	13.1
Dec.	635	5,438	8.6	264	1,848	7.0	528	7,074	13.4	650	6,565	10.1
Total	3,957	46,519	12.3	2,342	22,360	9.5	5,359	45,213	8.4	3,866	40,122	10.4

TABLE 2. Estimated size distribution of *S. pharomnis* in percentage

M.L. (mm)	Jan.'90	Feb.'90	Mar.'90	Apr.'90	May '90	Jun.'90	Jul.'90	Aug.'90	Sep.'90	Oct.'90	Nov.'90	Dec.'90	Total
160-169	4.1	1.7	-	-	-	-	-	-	-	-	-	-	1.2
170-179	3.9	-	1.5	-	-	-	-	-	-	-	-	-	0.9
180-189	-	4.0	-	-	-	-	-	-	-	-	-	-	1.0
190-199	4.1	-	1.0	2.6	-	-	-	-	-	-	-	3.0	1.3
200-209	7.9	1.7	2.0	3.2	-	-	0.8	1.9	-	-	-	-	2.4
210-219	4.1	2.2	1.5	5.0	1.5	-	0.8	1.9	-	-	-	8.5	2.9
220-229	-	6.1	3.0	2.5	-	-	2.6	-	1.8	-	-	8.5	3.3
230-239	11.5	7.8	11.7	9.0	10.5	-	1.6	1.6	-	-	-	10.3	7.1
240-249	4.1	6.1	5.4	8.0	1.5	-	2.4	1.9	1.8	-	-	8.5	4.6
250-259	4.1	2.2	3.9	2.6	5.3	-	9.3	5.6	8.8	-	-	4.8	5.1
260-269	4.1	8.4	8.7	7.4	5.3	-	8.4	5.6	1.8	-	-	3.0	5.6
270-279	12.0	8.3	7.2	7.6	6.9	-	11.7	3.1	1.8	-	-	4.8	7.5
280-289	15.8	10.9	17.0	8.3	12.1	-	11.6	3.8	3.6	-	-	3.0	9.8
290-299	7.9	6.5	4.5	9.0	6.9	-	10.1	3.4	3.4	-	-	2.4	5.9
300-309	-	4.4	3.9	8.2	10.5	-	4.2	7.5	3.6	-	-	8.5	4.4
310-319	4.1	7.5	9.9	10.8	1.5	-	9.3	5.0	3.6	-	-	10.9	6.8
320-329	7.7	6.2	8.3	2.5	8.4	-	13.6	4.7	7.2	-	-	6.1	7.4
330-339	-	-	3.5	2.5	4.6	-	5.1	5.3	3.6	-	-	5.4	2.5
340-349	3.9	3.8	1.0	3.2	6.9	-	1.6	6.6	3.4	-	-	6.1	3.9
350-359	-	1.7	2.0	2.5	1.5	-	2.6	8.1	7.0	-	-	-	2.1
360-369	-	2.2	1.0	2.6	1.5	-	2.6	10.0	5.2	-	-	3.0	2.8
370-379	-	4.0	1.0	-	5.3	-	0.8	11.5	13.9	-	-	-	4.2
380-389	-	2.2	-	2.5	3.1	-	-	3.4	10.5	-	-	3.0	2.9
390-399	-	1.7	2.0	-	3.1	-	-	3.4	8.6	-	-	-	2.2
400-409	-	-	-	-	3.1	-	0.8	3.8	10.3	-	-	-	2.0
410-419	-	-	-	-	-	-	-	1.9	-	-	-	-	0.1
Sample Nos	25	49	48	36	31	-	65	58	41	-	-	-	36.0 (389)

Cuttle fish were procured right at the landing centre by the processing companies. They were sold at the rate of Rs.28/kg, Rs. 42/kg, Rs. 60/kg and Rs. 72/kg during 1990, '91, '92 and '93 respectively. However, *Loligo* spp, do not fetch such high prices and it varied from Rs.8/kg, Rs.12/kg, Rs. 15/kg Rs.20/kg respectively during the same period.

The present observation reveals the emergence of a new fishery for cephalopods along the Tuticorin Coast. In contrast to the cephalopod catch by trawl net the present exploitation by jigs is highly selective and brings in large sized cuttle fish belonging to one species. Further, it is caught only during day time. Night fishing with the necessary facilities may enhance the cephalopod production in future.