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952 OCCURRENCE OF DEEP SEA SQUIDS IN COMMERCIAL TRAWL CATCHES FROM COCHIN

K. Sunilkumar Mohamed, V. Kripa, Mathew Joseph and P.S. Alloyious

Central Marine Fisheries Research Institute, Cochin

Cephalopods form a significant percentage (approximately 20%) of the trawl landings in Kerala, the catch mainly comprising of the neretic loliginid squids and the sepioid

cuttlefishes. Since cephalopods have a good export demand, it is the second most sought after commodity after prawns by the trawl operators. Due to the ever increasing pressure to maximize

their returns, trawl operators have recently expanded the trawling grounds to deeper areas by equipping their vessels with electronic fishing aids like fish finders and GPS (global positioning system). The year 1999-2000 witnessed unprecedented expansion of trawl grounds up to the 500 m depth zones by trawl boats operating from Cochin and nearby fishing ports. This has resulted in the landing of hither to little known and unexploited marine resources although the main target of these boats were the deep sea prawns, occasionally a few species of cephalopods were also caught along with the prawn.

During second week of February 2000, several trawl boats operating from Munambam Fishing Harbour reported the occurrence of very large unusually shaped squids (reported in local newspapers) in their catches. One of these specimens was preserved in ice by an enterprising fisheries NGO (Green Seas, Munambam) for scientific examination. This specimen was later brought to the laboratory for detailed study and preservation. The following are the details recorded.

The specimen was caught (on 17-2-2000) in a haul made by a 55 feet OAL trawl boat operating at 9°26'N;75°31'E (48 nm west of Alleppey) at a depth of 465 m. The boat, engaged in multi-day fishing, was powered by a 130 HP Leyland turbo charger engine with 1200 m wire rope and 70 kg steel otter boards. The squid specimen (Fig.1) which weighed 7.5 kg had the following dimensions (Table 1).

TABLE 1. Morphometric characters of the deep sea squid caught off Alleppey.

Characteristics	Measurement (mm)
Dorsal Mantle Length (DML)	620
Total Length	1060
Mantle Width	515

Fin Length	580
Head Length	145
Right Arm I	350
Right Arm II	335 (damaged)
Right Arm III	395
Right Arm IV	365
Left Arm I	292
Left Arm II	270
Left Arm III	320
Left Arm IV	335 (damaged)
Head Width	95.7
Mouth diameter	48.3
Mantle thickness	53.6
Sex	Male, mature



Fig. 1 : Dorsal view of *Thysanoteuthis rhombus* caught by a 55 feet OAL trawler from 9° 26, 75° 31, E (off Alleppey) at a depth of 465 m.

Both the tentacles of the specimen were missing, besides the eyes were also damaged. The identification protocol given by the FAO was followed to identify the specimen. Based on the mantle shape (rhombic), fin length (extending to nearly full length of the mantle) and shape of the funnel-locking apparatus (short, broad with transverse groove) the specimen was identified as the diamond back squid *Thysanoteuthis rhombus* (Order: Teuthoidea; Suborder: Oegopsida; Family: Thysanoteuthidae).

This large monotypic squid (attains at least 100 cm DML and 20 kg weight, common to 60 cm DML) is reported to occur worldwide in tropical and warm subtropical oceanic waters but nowhere abundant. An epipelagic, oceanic species, often occurring in pairs or small schools, it forms a small fishery in the Japan Sea. In India, its occurrence has been reported off the coast of Gujarat during the winter months, in Andaman and Nicobar Islands and off Vizhinjam. Off Andaman and Nicobar Island a single large female measured 585 mm DML and weighed 5.3 kg was reported. During 1996, 3 specimens of *T. rhombus* of 300-340 mm were caught in hook and lines at 75-100 m depth. The present record therefore, is the largest reported from Indian waters.

Besides, *T. rhombus*, another strange squid species was also reported in catches by the deep sea trawlers operating from Munambam Fisheries Harbour. This specimen was not physically examined, only a photograph (Fig.2) was made available by the NGO. From the photograph, the squid was tentatively identified as *Chiroteuthis* sp. Although continental, considered predominantly oceanic, this genus also occurs in demersal trawls in the



Fig. 2: Ventral view of the *Chiroteuthis* sp. squid caught by Munambam based deep sea trawlers during February 2000.

continental slope waters at depths of 300-600 m especially off northern Australia. *Chiroteuthis* have no commercial fisheries potential, due to their soft gelatinous body. In India, they have been caught in pelagic trawls in the Andaman and Nicobar Islands.

The extension of trawling grounds by the trawl fleets in Kerala has resulted in the capture of new cephalopod resources, the abundance and commercial value of which remains to be explored. Presently, the cephalopods caught by these trawlers are few.

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