Indian Journal of Fisheries 38 (1) : 66-68, March 1991

Unusual occurrence of two species and rare occurrence of one species of neritic squids off Mangalore coast

K SUNILKUMAR MOHAMED[1] and D NAGARAJA[2]

Mangalore Research Centre, Central Marine Fisheries Research Institute, Mangalore, Karnataka 575 001

Received: 26 October 1990

Cephalopods have a wide distribution in the seas around India, although only a few of them form a fishery at some centres. At Mangalore, cephalopods comprising mainly of *Loligo duvaucelii* (90%), *Sepia aculeata* and *S. pharaonis* constitute about 5–10% (962 tonnes in 1988) of the total trawl catch.

In November and December 1988, a loliginid squid commonly found in commercial quantities along the south Kerala coast, and another closely related species that occurs along with other species of squids in small numbers, were observed in trawl catches at Mangalore Bunder. These were identified as

Fig. 1 A. *Doryteuthis sp.* male, 156 mm DML, dorsal view.

Fig. 1 B. *Sepioteuthis lessoniana* male, 292 mm DML, dorsal view.

Present address: [1]Scientist, [2]Technical Assistant.

belonging to the genus *Doryteuthis* (Fig. 1A) as the taxonomic characters showed resemblance to *D. sibogae* described by Silas *et al.* (1985a) and some characters were similar to *D. singhalensis*. These species first appeared in the fishery on 16 November 1988 and subsequently disappeared by 7 December 1988. During this period, 5.2 tonnes of these squids were estimated to have been landed at this centre forming 1.15% of the cephalopods caught during the quarter. The smallest specimen, an immature male, measured 63 mm DML (dorsal mantle length) while the largest, a spent male, measured 225 mm. The length frequency distribution is shown in Fig. 2, and the sex ratio and maturity stages in Fig. 3.

Modal lengths observed were 85, 105, 125, 145 and 155 mm. Silas *et al.* (1985b) observed that *D. sibogae* attained an average size of 113 mm at the end of the first year and 182 mm at the end of the second year. Thus, both first and second year class squids were present in the landings at Mangalore. All males above 120 mm and all females of 80–150 mm size were fully mature. Male to female ratio was 75:25.

The unusual occurrence of *Doryteuthis* sp. about 600 km north of its usual habitat could probably be explained by the existence of a stronger than normal north-flowing coastal current during November–December associated with an influx of low salinity water

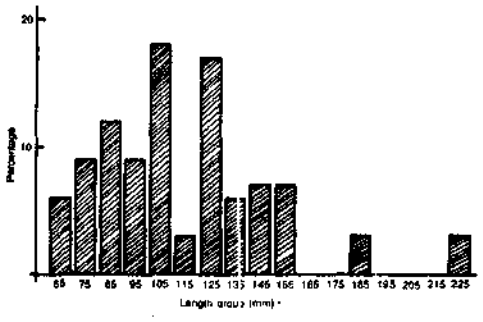

Fig. 2. Length frequency distribution of *Doryteuthis* sp.

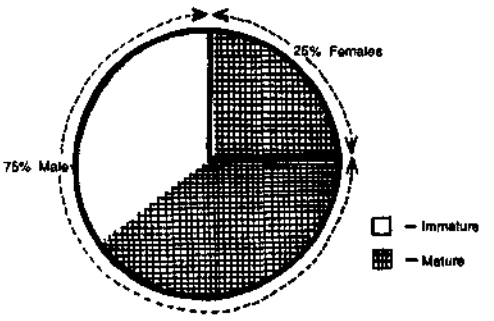

Fig. 3. Pie chart showing sex ratio and percentage of mature individuals of *Doryteuthis* sp.

from the south. Johannessen *et al.* (1981) suggested such a current pattern to be a regular oceanographic feature along the southwest coast of India but occurring with varying extent in different years. The length-frequency distribution (Fig.2) showed that the squids of smaller length groups (<130 mm) were more in number, probably more influenced by the current, than the longer size groups. *Doryteuthis* sp. formed a considerable percentage of the squid catch during the same period in Cochin area also (M M Meiyappan, personal communication). Mangalore appeared to be the northern limit of the distribution of this species during the period as it was not observed in trawl catches in Malpe and Karwar (beyond Mangalore).

In March 1989, a single specimen of the Palk Bay squid *Sepioteuthis lessoniana* (Fig. 1B) was obtained from trawl landings at Mangalore Bunder. In India, although this species is widely distributed, large concentrations are confined to the southeastern coast, especially the Palk Bay and the Gulf of Mannar (Sarvesan 1974). At Vizhinjam, on the southwest coast, it occurred in small numbers in shore-seine and boat-seine catches (Silas *et al.* 1982). This species was not reported earlier from the South Kanara coast. The specimen obtained was a 292 mm DML male, the mor-

phometric measurements of which are given in Table 1.

Table 1. Morphometric measurements of *Sepioteuthis lessoniana* (male)

Parameters	Measurements (mm)
Weight (g)	1 064
Length of dorsal mantle	292
Mantle width	194
Fin length	260
Fin width	57
Head length	41
Head width	63
Length of I right arm	98
Length of II right arm	127
Length of III right arm	143
Length of IV right arm	124
Length of right tentacle	393
Length of right tentacle club	112
Length of hectocotylized arm	132
Hectocotylus length	60
Funnel width	17
Eye diameter	14

ACKNOWLEDGEMENTS

We thank Shri K V N Rao, former Officer-in-Charge, Mangalore Research Centre of Central Marine Fisheries Research Institute and Dr K S Rao, Head; Molluscan Fisheries Division, for critically going through the manuscript and suggesting improvements. Thanks are also due to Shri R Sarvesan, Senior Scientist, Madras Research Centre of Central Marine Fisheries Research Institute, for the help in identifying one of the species.

REFERENCES

Johannessen O M, Subbaraju G and Blindheim J. 1981. Seasonal variations of the oceanographic conditions off the southwest cost of India during 1971-75. *FiskDir Skr Serie HavUnders* 18: 247-61.

Sarvesan R. 1974. Cephalopods. The commercial molluscs of India. *Bulletin Central Marine Fisheries Research Institute* 25 : 61-83.

Silas E G, Rao K S, Sarvesan R, Nair K P and Meiyappan M M. 1982. The exploited squid and cuttle fish resources of India, a review. *Marine Fisheries Information Service. Technical and Extension Series* 34: 1-17.

Silas E G, Nair K P and Sarvesan R. 1985a. New record of a loliginid squid, *Doryteuthis sibogae* Adam 1954 (Cephalopoda, Loliginidae) from Indian waters. *Indian Journal of Fisheries* 32 : 281-87.

Silas E G, Rao K S, Sarvesan R, Nair K P, Vidyasagar K, Meiyappan M M, Sastri Y A and Rao B N. 1985b. Some aspects of the biology of squids. *Bulletin Central Marine Fisheries Research Institute* 37 : 38-48.