

**A NOTE ON THE FOOD OF MALABAR TREVALLY,
CARANGOIDES MALABARICUS (BLOCH & SCHNEIDER)
FROM THE NORTH-WESTERN BAY OF BENGAL**

Carangoides malabaricus (Bloch & Schneider) is the most important carangid landed by the trawlers operating in the north-western Bay of Bengal. It is observed in the trawl catches at all hours of the day. Preliminary observations on the food and feeding habits of the fish collected during 1964-66 show that it is essentially a carnivore and a column feeder and that *Acetes*, prawns, *Squilla*, crabs and miscellaneous small fishes are the important items of food besides small quantities of mysids, amphipods, other crustaceans, squids and cuttle fish. However, sometimes the food exclusively consists of only one of the items mentioned above.

On 18th July, 1964 and 8th August, 1966 an unusual item of food was found in the stomachs of *C. malabaricus* and was identified as *Euphausia distinguenda* Hansen. The euphausiids were very fresh and majority mature, as shown by well developed petasma in males and spermatophores attached to the thelyca in females. Details regarding the collection of fish samples and percentage composition of the feed on the days of occurrence of the euphausiids in the stomachs of the fish are given below.

TABLE

Date.	18-7-1964.	8-8-1966.
Vessel.	M.T. Ashok.	M.V. Champa
Area.	Lat. 18° 35'N., Long. 84° 35'E.	Lat. 17° 35'N., Long. 83° 25'E.
Time of fishing.	0630-1115 hrs.	0800-1200 hrs.
Number of stomachs examined.	8	24
Length range of fish in mm.	124-172	122-190
Number of stomachs in which euphausiid is seen.	2	24
Average number of euphausiids per stomach	53	168
Length range of the euphausiid in mm.	7.0-8.05	7.5-13.5

Percentage composition of the feed in the stomachs in which euphausiids were seen.

(a) Euphausiids	75.0%	69.9%
(b) <i>Squilla</i> sp.	20.0%	—
(c) Crabs	5.0%	0.7%
(d) Prawns	—	0.9%
(e) Fish juveniles	—	1.5%

It is interesting to note that 21 out of 24 stomachs examined on 8-8-1966 contained only euphausiids. Most of the stomachs were full. The quantity of the feed indicates that the fish had fed on a thick patch of the euphausiid while the freshness of the feed shows that the fish had fed on the euphausiids just before they were caught. Examination of the stomachs of *C. malabaricus* collected a few days before and after 8-8-1966 revealed no euphausiids in them but mainly or only *Acetes*. The present observation also indicates that *C. malabaricus* is not particularly selective in regard to food.

A review of the literature shows no reports on the occurrence of *E. distinguenda* Hansen in the guts of fish from Indian waters although this species is reported to be abundant in the Arabian Sea (Illig, 1930; Tattersall, 1939; Brinton, 1963 and Pono-

poor in March 1964. Majority of the stomachs contained diatoms, copepods, medusae, dinoflagellates, amphipods and *Acetes*. Only four specimens contained

TABLE I

<i>Size group in mm. (Total Length)</i>	<i>Month and Year</i>	<i>Major food elements observed</i>
49 - 60	March 1964	Stomachs 1/4 to 1/3 full. Mainly unrecognisable matter. A few copepods, amphipods and fish scales.
76 - 105	April 1968	Stomachs 3/4 to full. Mainly medusae, diatoms, fish scales and copepods. A few dino-flagellates, amphipods fish egg (white bait), diatoms and lamellibranch larvae.
106 - 125	May 1968	Stomachs 3/4 to full. Mainly <i>Acetes</i> (Semi-digested) and diatoms. Some unrecognisable greenish matter and sand grains. In a 116 mm. fish one bottom living polychaete measuring 145 mm. was found.
126 - 150	May 1968	Stomachs 3/4 to full. Mainly diatoms, copepods lamellibranch larvae and a few gastropod larvae, tintinnids, sand particles cypris larvae and some unrecognisable greenish matter.

1 or 2 whitebait eggs. A few lamellibranch larvae, tintinnids, cypris larvae, gastropod larvae, fish scales and sand grains were also found. Unrecognisable greenish matter was usually observed in the stomachs. Although the occurrence of medusae in the diet of mackerel is reported (Hardenburg 1955), the presence of a bottom living polychaete measuring 145 mm., in the stomach of a 116 mm. juvenile mackerel, is very interesting. It may be mentioned that Rao and Luther (reported by Rao 1962) recorded polychaete remains from juvenile mackerel collected from Port Blair. This shows that besides feeding on plankton, the juvenile mackerel may at times resort to bottom feeding in the inshore waters.

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mareva, 1964). However, Ganapati and Rao (1957) report the presence of euphausiids (species not given) from the stomachs of *Sardinella gibbosa* (Blkr.) off Waltair coast.

The appearance of *E. distinguenda*, which is usually a deep water form (Illig, 1930 and Tattersall, 1939) in the near-shore waters (see table) as in the present case is interesting. The fact that although *C. malabaricus* is landed in the trawl nets at all hours of the day, *E. distinguenda* was observed in the stomachs of fishes caught only in the forenoon is suggestive of a vertical movement of the latter in the Bay. The euphausiid material comprised both adults and sub-adults on the first occasion (18-7-1964) but only mature adults on the second occasion (8-8-1966). As against this the extent of the feed suggests that the euphausiid was perhaps present in a thick patch in the Bay on the second occasion, but not so on the first occasion. This supports the view of Ponomareva (1958) and others that during spawning season euphausiids congregate in swarms and ascend to deposit eggs. Sebastian (1965) states that *E. distinguenda* occurs mostly in swarms.

It is known that euphausiids are among the organisms responsible for the deep scattering layer in the sea (Marshall, 1954), but from the seas around India there is practically no information in this regard. Their importance in the economy of the sea is well known. Further information on the occurrence of euphausiids in the stomach contents of fishes, especially carangids and other column feeders, their maturity and the time of occurrence should be interesting.

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