

REFERENCES

- AIDA, K. R., S. IZUMO, H. SATOH AND T. HIBIYA 1978. *Bull. Japanese Soc. Sci. Fishs.* 44 : 445-450.
- ALI, H. M. 1986. In : J.W. COPLAND AND D.L. GREY (Ed.), *ACIAR Workshop on Management of Wild and Cultured Sea Bass/Barramundi (Lates calcarifer)*, Darwin, N.T. Australia, 24-30, Sept., 1986: 129-131.
- ALMENDRAS, J. M. C. DUENAS, J. NACARIO, N. M. SHERWOOD AND L. W. CRIM 1988. *Aquaculture*, 74 : 97-111.
- ANON 1977. *Acta Biochem. Biophys. Sinica*, 9 : 12-25.
- BANCHONG, T., B. SIGHT, C. SONGKLOD, K. Y. SUMBODO AND S. HANUNG. 1989. *FAO/UNDP Sea Farming Development Project INS/81/008 Manuals/15* 55p.
- CRIM, L. W. 1985. In : C. S. Lee and I.C. Liao (Ed.), *Reproduction and culture of Milkfish. Oceanic Institute and Tungkang Marine Laboratory 22-24 April, 1985* : 1-13.
- DONALDSON, E. M., G. H. HUNTER AND H. M. DYE 1981. *Aquaculture*, 26 : 129-141.
- GARCIA, L. Ma. B. 1989. *Aquaculture*, 77 : 85-96.
- GREY, D. L. 1986. In : J. W. Copland and D. L. Grey (Ed.), *ACIAR Workshop on Management of Wild and Cultured Sea Bass/Barramundi (Lates calcarifer)*, Darwin, N. T. Australia, 24-30 Sept., 1986 : 15-21.
- HARVEY, B., J. NACARIO, L. W. CRIM, J. V. JUARIO AND C. L. MARTE 1985. *Aquaculture*, 47 : 53-59.
- LEE, C. S., C. STAMARU AND L. W. CRIM 1985. In : C. S. Lee and I. C. Liao (Ed.), *Reproduction and Culture of Milkfish. Oceanic Institute and Tungkang Marine Laboratory, 22-24 April, 1985* : 215-226.
- LAM, T. J., S. PANDEY, Y. NAGAHAMA AND W. S. HOAR 1976. *Canadian J. Zoology*, 54 : 816-824.
- LIM, L. C., H. H. HENG AND H. B. LEE 1986. *Singapore J. Prim. Ind.*, 14 : 81-95.
- MANEEWONG, S. 1986. In : J. W. Copland and D. L. Grey (Ed.), *ACIAR Workshop on Management of Wild and Cultured Sea Bass/Barramundi (Lates calcarifer)*, Darwin, N.T. Australia, 24-30 Sept., 1986 : 116-119.
- NACARIO, J. F. 1986. *Ibid* : 126-128.
- AND N. M. SHERWOOD, 1986. In : *The First Asian Fisheries Forum. Manila, The Philippines (abstr.)* : 13.
- SHERWOOD, N. M., L. W. CRIM, J. CROLSFELD AND S. M. WALTERS 1988. *Aquaculture*, 74 : 75-86.
- SOKOLOWSKA, M., W. POPEK AND K. BIENIARZ 1978. *Ann. Biol. Anim. Biochem. Biophys.* 18 : 963-975.

RARE SQUID, *THYSANOTEUTHIS RHOMBUS* TROSCHEL FROM THE GULF OF MANNAR, INDIA

ABSTRACT

The occurrence of a rare oceanic squid, *Thysanoteuthis rhombus*, off Veerapandianpatnam in Gulf of Mannar on the east coast of India is reported.

EPIPELAGIC oceanic rhomboid squid *Thysanoteuthis rhombus*, has a thick cylindrical muscular mantle, wide anteriorly and gradually tapering to a blunt end posteriorly. The fins are long and occupy continuously the entire length of the mantle along the sides. The shape of the fin is characteristically rhombic being very broad at the middle and tapering towards the anterior and posterior ends. The head is

shorter than its width. Eyes are prominent. The oral arms are long with cirrate trabeculate protective membranes. The outer lateral arms are the longest and the inner dorsal arms are the shortest and provided with a crest like muscular projection at the base of each arm. The other arms are intermediary in length and devoid of such structures. All the arms are with two rows of suckers and the sucker rings

are with 20-26 sharp teeth. The funnel and mantle locking apparatus is typical and the

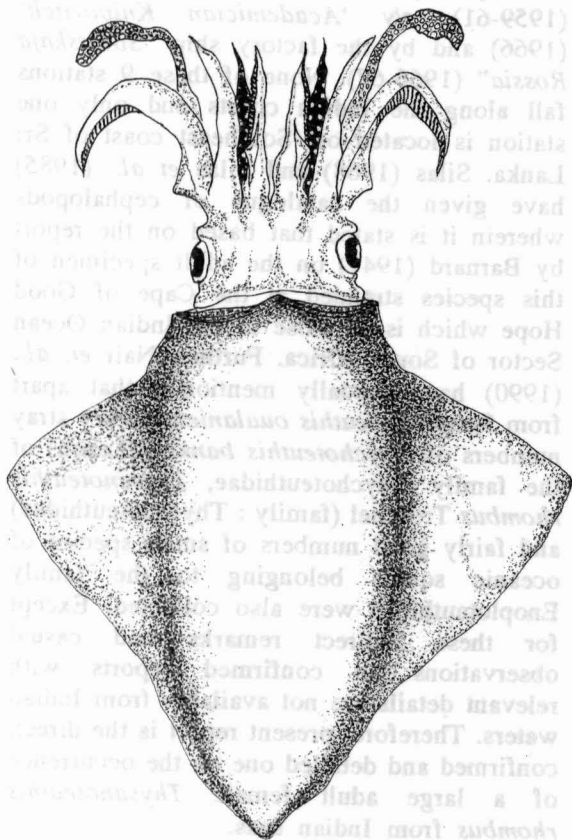


FIG. 1. Dorsal view of *T. rhombus*

cartilage is characteristically '1'-shaped as shown in Fig. 2. The tentacles are rather weak and the clubs are slightly expanded in the middle, with four rows of suckers; sucker rings with 15 - 20 sharp teeth.

This specimen was caught at a depth of about 60 m by *paruvai* a type of drift gillnet with mesh size 120 - 170 mm on the very early morning of 30th June, 1994. This squid measured 700 mm in mantle length on the dorsal side and it is reported to grow as large as 100 cm (Roper et. al., 1984). Various morphometric measurements obtained are given in Table 1. The wet weight of the squid was recorded to be 12.25 kg and it was a female.

Figures 1 and 2 exhibit the dorsal and ventral views of the squid along with the funnel locking apparatus, tentacle club, sucker ring and the upper and lower beaks.

This monotypic species is well defined by Roper et. al., (1984). The occurrence of this species is known in the North and South Atlantic, in particular, from strandings near the Cape of Good Hope (Barnard, 1947) and Algoa Bay (Bruggen, 1962), in the Pacific - off Japan,

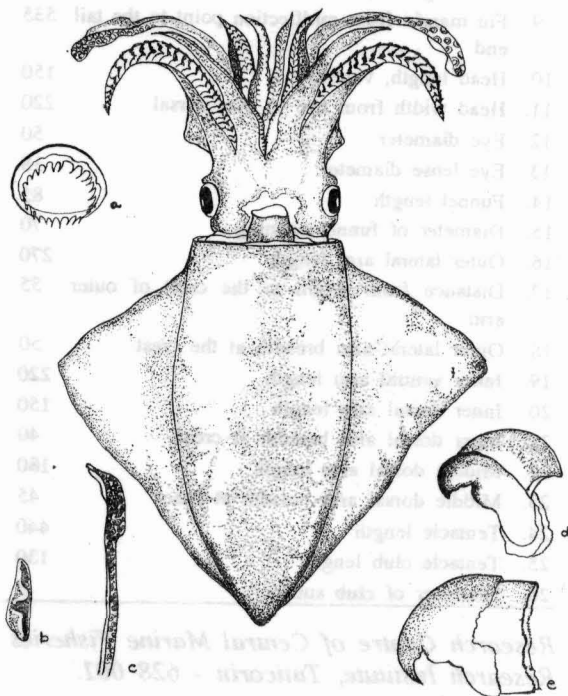


FIG. 2. Ventral view, funnel locking apparatus, tentacle club, sucker ring, upper and lower beaks

China and Benin Islands (Sasaki, 1929; Pfeffer, 1912; Nishimura, 1966). Voss and Erdman (1959) have dealt in detail the distribution of this species in the Atlantic and Pacific Oceans and they have remarked that despite the paucity of records of adult specimens, this is almost certainly a common pelagic species. As seen from the cephalopod collections made by Dana expeditions in the North Atlantic that a number of thysanoteuthid larvae were caught and the lack of capture of adults was probably due to their size and speed.

TABLE 1. Different morphometric measurements of the Rhomboid Squid *Thysanoteuthis rhombus* caught off Veerapandianpatnam, Gulf of Mannar.

	mm
1. Mantle length, dorsal	700
2. Mantle length, ventral	670
3. Mantle girth at opening	510
4. Mantle girth at midpoint	590
5. Maximum width at midpoint of mantle, dorsal	680
6. Maximum width at midpoint of mantle, ventral	685
7. Maximum width of fin, ventral	220
8. Fin margin from the head to midflexion point	310
9. Fin margin from midflexion point to the tail end	535
10. Head length, ventral	150
11. Head width from eye to eye, dorsal	220
12. Eye diameter	50
13. Eye lense diameter	18
14. Funnel length	85
15. Diameter of funnel opening	70
16. Outer lateral arm length	270
17. Distance from origin to the crest of outer arm	55
18. Outer lateral arm breadth at the crest	50
19. Inner ventral arm length	220
20. Inner dorsal arm length	150
21. Inner dorsal arm breadth at crest	40
22. Middle dorsal arm length	180
23. Middle dorsal arm breadth at base	45
24. Tentacle length	440
25. Tentacle club length	130
26. Diameter of club sucker	5

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REFERENCES

- BARNARD, K. H. 1947. *J. Conch. Lond.*, **22** : 286.
- BRUGGEN, A. C. VAN 1962. *Ann. of the Natal Museum*. **15** : 267-272.
- FILIPPOVA, J. A. 1968. *Proc. Symp. Mollusca*, Mar. Biol. Ass. India, Pt. 1 : 257-264.
- NAIR, K. PRABHAKARAN, K. SATYANARAYANA RAO, R. SARVESAN, M. M. MEYAPPAN, G. SYDA RAO, MATHIEW JOSEPH AND D. NAGARAJA 1990. *Proc. First Workshop Scient. Resul. FORV Sagar Sampada*, 5-7 June, 1989 : 403-407.
- NISHIMURA, S. 1966. *Publ. of the Seto Mar. Biol. Lab.*, **14** (4) : 327-349.
- PFEFFER, G. 1912. *Ergebnisse der Plankton-Expedition der Humboldt-Stiftung*, **2** : 1-815.
- ROPER, C. F. E., M. J. SWEBNEY AND C. E. NAUEN 1984. *FAO Fish. Synop.*, (125) Vol. 3 : 277 p.
- SASAKI, M. 1929. *J. Fac. Agric. Hokkaido Imp. Univ.*, **20**, (Suppl.) **10** : 1-357.
- SILAS, E. G. 1968. *Proc. Symp. Mollusca. Mar. Biol. Ass. India*, Pt. I : 277-359.
- , K. PRABHAKARAN NAIR, M. M. MEYAPPAN AND R. SARVESAN. 1985. *Bull. Cent. Mar. Fish. Res. Inst.*, **37** : 5-37.
- VOSS, G. L. AND D. S. ERDMAN 1959. *Mar. Lab. Univ. Miami Nautilus*, **73** (1) : 23-25.

Filippova (1968) reported the occurrence of this species in Indian Ocean at 9 stations out of 190, based on the extensive collections of cephalopods made by r/v 'Vityaz' (1959-61), r/v 'Academician Knipovitch' (1966) and by the factory ship "Sovetskaja Rossia" (1966-67). None of these 9 stations fall along the Indian coasts and only one station is located off Southeast coast of Sri Lanka. Silas (1968) and Silas *et al.*, (1985) have given the catalogue of cephalopods wherein it is stated that based on the report by Barnard (1947) on the adult specimen of this species stranded at the Cape of Good Hope which is so close to the Indian Ocean Sector of South Africa. Further, Nair *et al.*, (1990) have casually mentioned that apart from *Symplectoteuthis oualaniensis* very stray numbers of *Onychoteuthis banksii* (Leach) of the family Onychoteuthidae, *Thysanoteuthis rhombus* Troschel (family : Thysanoteuthidae) and fairly good numbers of small species of oceanic squids belonging to the family Euploteuthidae were also collected. Except for these indirect remarks and casual observations no confirmed reports with relevant details are not available from Indian waters. Therefore, present report is the direct, confirmed and detailed one on the occurrence of a large adult female *Thysanoteuthis rhombus* from Indian seas.