REFERENCES

BRYAN, G.W., 1968. *J. mar. biol. Ass. U.K.*, **48** : 303-321.

MARTIN, J.L.M. 1974. *Mar. Biol.*, **28** : 245-251.

———— AND H.R. CECCALDI, 1976a. *C.R. Seane. Soc. Biol. Filiales*, **170** : 153-156.

———— AND ————, 1976b. *C.R. Seanc. Soc. Biol. Filiales*, **170** : 157-162.

OSER, B.L., 1976. Haw's physiological chemistry, 14th edn. Tata McGraw Hill Book Company Ltd., New Delhi, pp. 115.

PILLAI, C.K. AND T. SUBRAMONIAM, 1985. *Physiol. Zool.*, **58** : 445-457.

PONNUCHAMY, R., S. AYYAPPAN, S. RAVICHANDRA REDDY AND KATARE SHAKUNTALA, 1979. *Proc. Indian Acad. Sci.* **88B** : 353-362.

SHAKUNTALA, K. 1976a. *J. Inland Fish Soc. India.*, **8** : 109-110.

———, 1976b. *Experientia*, **32** : 629.

———— 1977. *J. Anim. Morphol. Physiol.*, **24** : 13-20.

WIESER, J.S. 1976. *Fish. Bull. U.S.*, **74** : 464-467.

WILLIAMS, A.K. AND R.C. SOVA, 1966. *Bull. Environ. Contam. Toxicol.*, **1** : 198-204.

OCCURRENCE OF *CIRRHIMURAENA PLAYFAIRII* (GUNTHER) (ANGUILLIFORMES : OPHICHTHIDAE) FROM THE YANAM WATERS OF THE COROMANDEL COAST OF INDIA

ABSTRACT

Cirrhimuraena playfairii (Gunther) is reported for the first time from the Indian coastal waters at Yanam (Union territory of Pondicherry), along the Coromandel coast. This fringed lip eel was earlier known only from the African coasts of the Indo-Pacific.

DURING the suvey of Yanam (Union Territory of Pondicherry) by a Zoological Survey of India team, during april 1995, 10 specimens, (230 — 335 mm TL) were collected from Bheemnagar and Kanakalapeta landings from off the Godavary estuary. The specimens have been registered (F. 4426 & F. 4420) and deposited in the Reserve Collections of the Southern Regional Station. Measurements are expressed as 'times' in total length (TL) and head length (HL); the mean value is provided along with the range in paraenthesis.

The authors are grateful to the Director, Zoological Survey of India and the Officer-in-Charge for providing necessary facilities. Our thanks are due to the O/C Dr. P. T. Cherian, Sci. 'SF' for going through the manuscript and offering useful suggestions. Our sincere thanks are also due to Mr. S. S. Misra of the Marine Biological Station for providing necessary literature.

Cirrhimuraena playfairii (Gunther)
(Figs. 1 & 2)

Ophichthys playfairii Gunther, *1870 : 76 (*Zanzibar*)*

Cirrhimuraena playfairii : Smith, SFSA *No 1099*

Jenkinsiella playfairii : Smith, 1957 : 840; 1962 : 449

Head pointed, 11.38 (10.95 — 11.99) in TL, 3.72 (3.60 — 3.86) in trunk; depth 43.30 (35.64 — 53.49) in TL, 14.00 (11.92 — 16.08)

in trunk; trunk 2.05 (1.99 — 2.18) in tail which is 1.49 (1.45 — 1.50) in TL; eye 18.90 (16.34 — 22.83) in head, 2.76 (2.28 — 3.43) in snout; jaw subterminal, cleft of mouth extends far beyond eye, 3.14 (2.85 — 3.59) in HL; pectorals 5.08 (3.82 — 6.61) in head (in one specimen of length 292 mm, pectoral is absent on the left side and in another specimen measuring 230 mm the left pectoral is shorter than the right — 3.1 mm and 4.6 mm respectively); base of pectoral 1.6 (1.21 — 2.0) in the extent of the gill opening; length of body cavity 4.20 (4.0 — 4.57) in TL. Upper jaw fringed, ranging from 12 — 17 in two batches on either side, being absent along the jaw where the posterior nostril opens. Maxillary teeth small, slender,

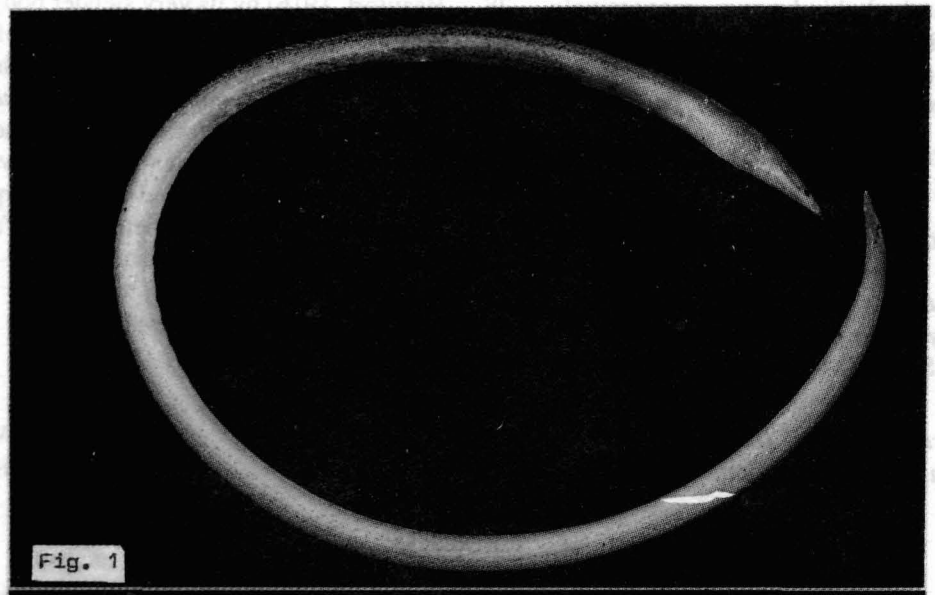

FIG. 1. Lateral view of *Cirrhimuraena playfairii* (Gunther), 296 mm TL
FIG. 2. Head of *C. playfairii* (Gunther), 296 mm TL

sharp, increasing in number posteriorly from 3 to 7 rows; vomerine teeth also in several rows, mandibles with a single row of teeth. A median interorbital pore, paired pores on head near snout and behind eye respectively. 28 overlapping branchiostegal rays visible on either side in a specimen of length 230 mm TL. Colour brown above, lighter below.

Distribution : Indo-Pacific : Zanzibar to Kosi Bay and Coromandel Coast.

Discussion : The specimens collected from Yanam, belong to the Indo - Pacific species *Cirrhimuraena playfairii* (Gunther), which can be easily distinguished from its congeners *C. inhacae* Smith (McCosker & Castle, 1986) also from the African coast and the three other species, *C. tapeinopterus* Blkr., *C. chinensis* Kaup and *C. chilopogon* (Blkr). from the Indo-Australian Archipelago (Weber and de Beaufort, 1916) by its very slender body, smaller pectorals and the number of rows of teeth in the upper jaw. It also differs from the fringed lip eel *Brachysomophis cirrhocheilus* (Blkr.) from Sri Lanka (Munro, 1955) in the absence of papillae on the lower lips. However, a few differences were observed in the morphometric characters of the specimens from Yanam *viz.* the pectorals are very short, 3.82 — 6.61 in head Vs. 3.5 — 3.8 in typical *C. playfairii* and the number of teeth rows are more 3-7 Vs. 3-4.

Zoological survey of India,
Southern Regional Station, Chennai

K. REMA DEVI
M. S. RAVICHANDRAN

REFERENCES

MCCOSKER, J. E. AND P. H. J. CASTLE, 1986. Ophichthidae, pp. 176—186 In *Smiths' Sea Fishes*, Edited by Margaret M. Smith and Phillip C. Heemstra.

MUNRO, I. S. R, 1955. *The Marine and freshwater Fishes of Ceylon.* Dept. of External affairs, Canberra. 349 pp.

WEBER, M. AND L. F. DE BEAUFORT, 1916. *The Fishes of the Indo-Australian Archipelago,* Leiden, Vol. III, 455 pp.

EFFECT OF TRACE ELEMENTS ON THE RATE OF CARBON PRODUCTION IN MARINE PHOTYPLANKTON AT DIFFERENT TEMPERATURE

ABSTRACT

The alteration in trace metal (Cu. Mn and Zn) toxicity was assessed in terms of rate of carbon production at different temperature in two unicellular algae *Synechocystis salina*, Wislouch and *Isochrysis galbana* Parke. The rate of carbon production was maximum at 15°C for *S. salina* and at 30°C for *I. galbana.* Metal toxicity increased at higher temperature (40°C) by inhibiting carbon production to a larger extent.

MANY of the trace elements are normal constituents of marine organisms and are essential for their metabolism. However, at higher concentrations, these elements become toxic. Copper, manganese and zinc play specific roles in algal nutrition. Only a few reports lay emphasis on the modification of metal toxicity at different temperture. Mandelli (1969) has discussed copper accumulation rates on growth and survival of algae in different thermal regimes. Uptake of ^{65}Zn in *Dunaliella tertiolecta* and toxicity of zinc to *Nitzchia linearis* were