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ON A RECORD OF *EPINNULA ORIENTALIS* GILCHRIST & VON BONDE, A BATHYPELAGIC FISH, FROM THE KONKAN COAST

DURING the fifteenth cruise of *R. V. VARUNA* in August 1962 to the Karwar-Ratnagiri section of the Arabian Sea it was possible to conduct some experimental fishing. In one of the hauls made at a place (14°49′N; 72°50′E.) with the midwater trawl from a depth of 300 meters, one specimen of *Epinnula orientalis* Gilchrist & von Bonde (92 mm. in total length and 73 mm. in standard length) was captured along with several other deep water fishes mostly belonging to the families Myctophidae and Chauliodontidae.

Fishes belonging to the genus *Epinnula* Poey are the smallest among the gempylids ; and are little known as they are rarely caught. Therefore, the capture of one specimen of *Epinnula orientalis* Gilchrist & von Bonde from the North Eastern Arabian Sea is of considerable interest.

Of the two known species, *E. magistralis* Poey and *E. orientalis* Gilchrist & von Bonde, the latter is recorded from Natal and Delagoa Bay, South Africa (Gilchrist & von Bonde, 1924 ; Smith, 1949) ; from Pacific off Japan (Matsubara and Iwai, 1952) ; and from Atlantic (Grey, 1953). The present record extends its distribution to the Indian waters. A description of the single specimen (No : CMFRI-F 170/491) collected from the Konkan Coast is given below :

Epinnula orientalis Gilchrist & von Bonde

D_1. XVI ; D_2. I. 18 ; A. III. 18 ; P_1. 14 ; P_2. 1.5 ; C. 26 ; GR. 4?+1+6.

Body fairly elongate, compressed, covered with minute cycloid scales. Dorsal profile of body slightly more convex than ventral.

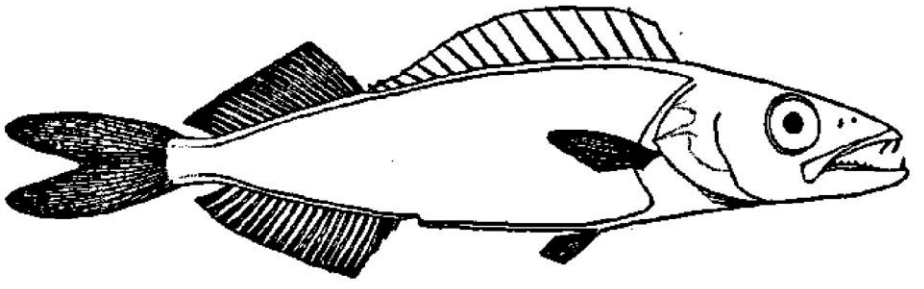
Depth 4.29 ; head 2.86 ; snout to origin of first dorsal 3.04 ; snout to pectoral 2.98 ; snout to pelvic 2.32 ; snout to origin of second dorsal 1.33 ; snout to origin of anal 1.42 ; length of caudal 4.03 in standard length. Snout 3.15 ; maxilla 2.43 ; eye 4.55 ; interorbital space 6.37 ; length of pectoral 2.11 ; length of pelvic 3.64 ; least height of caudal peduncle 5.42 in head length.

Cleft of mouth oblique ; maxilla extends to below middle of eye. Jaws anteriorly set with fang-like teeth ; three on the upper and two on the lower ; lower canine teeth remain outside mouth when latter is closed. The canines are followed by small sharp teeth of which the ones on the lower jaw slightly longer. About 26 small teeth on the upper jaw and 20 on the lower. Vomer and palatines dentate ; two small teeth on vomer and a single row of small fine teeth (6-8) on each palatine.

A single long gill raker at the angle of the arch followed by six fine rakers on the lower branch; on the epibranchial there are four localized areas with multiple points. Eye, high, conspicuously large.

First dorsal, originating a little anterior to pectoral, longer than second ; spines subequal. Pectoral extends slightly beyond the vertical below sixth dorsal spine, about half head length. Pelvics abdominal, origin closer to vent than snout and below vertical from mid length of pectoral. Origin of second dorsal slightly behind that of anal. Caudal forked.

Lateral line double, commences above the angle of opercle and just in front of first dorsal. Scales on lateral line paddle-shaped. Upper lateral line about 78, lower 28 from shoulder to chest, 90 from chest to caudal. Upper lateral line, running parallel to the dorsal profile of body, extends upto the end of second dorsal. Lower one slopes down chestwards obliquely behind the base of pectoral, then runs caudal very closely parallel to the ventral profile of body to end up on caudal peduncle (see figure).



Epinnula orientalis Gilchrist & von Bonde (9.2 cm.).

Colour of body, on preservation, greyish ; fin membrane of median fins, opercular lining, pectorals and pelvics dusky ; mouth not so. Colour of head similar to body.

Comparison of the present specimen with the type description (Gilchrist & von Bonde, 1924) and the figure (Smith, 1949) shows that the present specimen differs from the South African form in the shape of the body and pectorals ; orientation of the eye ; origin of ventrals in relation to pectorals ; in having fewer dorsal and anal rays. It may be mentioned in this connection that Grey (1953) described two new sub-species of *Epinnula orientalis*, namely *americana* and *pacifica* from the Western Atlantic. According to him the latter two differ from the typical form in having the ventral origin beneath the middle of pectoral ; a character present also in the present specimen described (*vide supra*). In the colouration of body, lining of the operculum and mouth and in having interorbital space narrower than the diameter of eye the present specimen resembles more *Epinnula orientalis americana* Grey than any other form described so far.

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ON AN UNUSUAL FISHERY FOR THE MACKEREL IN THE COCHIN BACKWATERS

On the west coast of India, the mackerel *Rastrelliger kanagurta* (Cuvier) is reported to enter the lower reaches of the Kali river at Karwar in April and May, when the salinity of the river water is between 29.73 and 34.60‰ (Pradhan, 1956). In the Netravati at Mangalore a fishery of small magnitude, extending as far as 6 miles up the river, was observed during the January-March period in 1958 (George *et al.* 1959).

The availability of mackerel in the backwaters at Cochin was noticed for the first time during January 1961. The fish occurred in regular schools till the middle of February and an organised backwater mackerel fishery sprung up during the period. Local fishermen could not recollect any time in the past when they were rewarded with such an opportunity.

The fish was restricted to backwaters south of the Cochin harbour, while the occurrence of oil-sardine was reported from north and south. The limit of this mackerel fishery has been observed to be Edacochi, about 6 miles to the south of the harbour mouth. The main fishing ground was in the Edacochi *kayal* about 4 miles south and beyond the southern end of the Willingdon island, the depth in the area being about 4 metres. The *Pattukanni vala* (a common boat-seine of the backwaters, of mesh size 14-20 mm. measured knot to knot diagonally when stretched in the wet condition) normally used for the capture of mullets, was effectively operated for the mackerel. As the fishery proved lucrative the coastal fishermen were tempted to try gill-nets but without success, as the nets usually got fouled.

The range of size (total length) in the samples from the backwaters was 200-230 mm. The model size for all the samples including those from the sea was 210 mm. Thus in the present case the fish from the sea as well as the backwaters were of the same size group ; the mackerel samples of Netravati river and of the coastal waters at Mangalore (George *et al.*, *loc. cit.*) on the other hand belonged to different size groups. The feeding activity of the backwater fish appeared to be comparatively dull while the fish from the sea showed fairly active feeding. Among the food items, copepods and diatoms were common in all samples, but dinophysids, though in very moderate numbers, were restricted to the fish from the sea. Ovarise, bloodshot and hollow in most of the specimens, appeared to be in spent condition but showed no trace of residual eggs. Testes, some of them large and milky white, showed advanced maturity conditions. The state of maturity of the gonads was