The stomachs in 395 individuals, out of 573 examined, were either partly or fully extroverted and had disgorged the food. The stomach contents of the rest of the specimens agreed with the observations of Rao (1963).

Pseudosciaena diacanthus does not constitute a fishery of any appreciable magnitude in shallow waters along the Goa cost, where it forms a fishery along the Maharashtra and Gujarat coasts. Jayaraman *et al.* (1959) have indicated an optimum depth range of 35 to 45 metres for 'ghol'. It appears from the present observations that *Pseudosciaena diacanthus* migrates to the shallow waters off Goa during September-November. The presence of the mature specimens of 'ghol' in the shallow coastal region off Goa suggests the possibility of their occurrence in large numbers in the deeper waters in this region. Exploratory trawling in the offshore region of Goa may lead to location of good fishing grounds for this species.

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AN ABNORMAL STING-RAY CAUGHT OFF CALICUT

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An abnormal male specimen of the sting-ray *Himantura uarnak* caught in the trawl net at Calicut is described. The anterior lobes of the pectoral fins were not fused with the head and were tapering forward and inward in the form of a pair of horns.

Reports on abnormal features of elasmobranchs from the Indian seas are of Luther (1961), Bennet (1964), Chhapgar (1964) and Easwaran (1967). Day (1878) noticed an abnormal specimen of *Gymnura poecilura* and described it as a

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separate species, viz., *Ceratoptera ehrenbergii* (Bigelow and Schroeder, 1953). No abnormal specimen seems to have been recorded in any of the species of the genus *Himantura* from the Indian waters.

An abnormal male specimen of *Himantura uarnak* (Forskal), caught in the trawl at Calicut from a depth of about 18 m on 25-4-1970, was brought to the notice of the authors (Fig. 1). The details of the specimen are as follows:

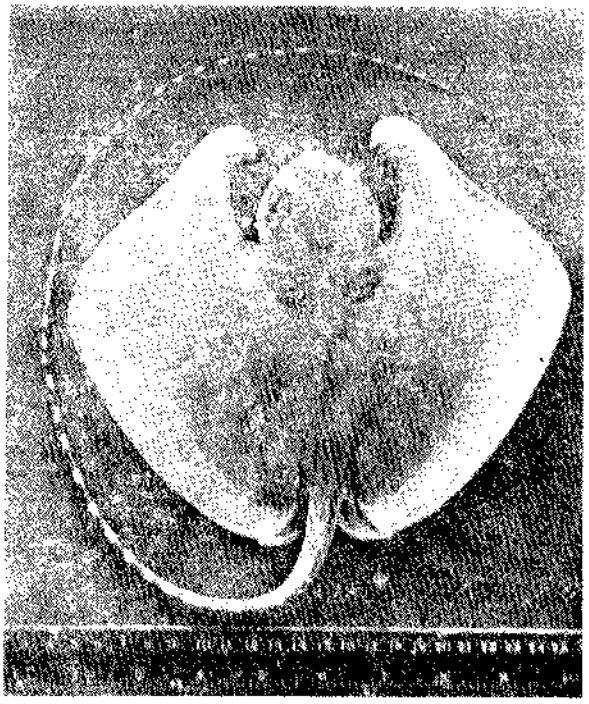

FIG. 1 Dorsal view of abnormal specimen of *Himantura uarnak* caught off Calicut.

Disc length	..	170 mm
Disc breadth	..	205 "
Tail length	..	528 "
Head length	..	36 "
Head breadth	..	47 "
Rostral lobe length	..	5 "
Ventral fin length	..	35 "
'Cephalic horn' length	..	36 "
No. of black bands on the tail	..	49
Weight	..	261 g

The body of the ray looked squashed with the disc slightly larger in breadth than in length. In the middle of the back there was a row of seven tubercles. The head was conspicuously distinct from the body and was 1.3 times larger in breadth than in length. A rostral lobe was present at the tip of the snout. There were three rows of tubercles on either side of the head along the occiput. The dental laminae were crooked. There were five buccal processes on the floor of the mouth, three in the middle and one on each side. The tail was very long and tapered towards the end. It was more than three times the length of the disc and had distinct black transverse bands. The anterior lobes of the pectoral fins were not fused with the head and were tapering forward and inward in the form of a pair of horns. Of the five pairs of gill slits, the first pair, relatively larger than the others, was situated along the lateral side of the head from where the pectorals started clefting. The other pairs, situated in a row on the ventral side of the disc, were somewhat away from the first one. The fresh specimen was brownish on the dorsal surface and whitish on the ventral. Its pectorals were slightly reddish.

It is known that during the embryonic development of the rays the pectorals which are posterior to the gill slits in early stages, extend both in front and behind the gill slits. These are blade-like or horn-like and fuse with the head. The fusion is normally completed sometime before the birth of the young one. Skates and rays with partially fused pectorals occur because of the failure of the lobes of the pectorals to fuse with the head (Bigelow and Schroeder, 1953 and Templemen, 1965). Bennet (1964) and Chhapgar (1964) have observed the phenomenon of partial fusion in some Indian species. In the present specimen the normal development of the pectorals seems to have been arrested in between the fourth and fifth pairs of gill slits.

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