

**ON A TWO-HEADED JUVENILE OF THE SPADE NOSE SHARK
SCOLIODON LATICAUDUS MULLER AND HENLE**

ABSTRACT

A case of embryonic *duplicatus anterior* in the spade-nose shark *Scoliodon laticaudus* Muller and Henle collected from off Karwar is reported.

MONSTROSITIES and abnormal formations among sharks and rays have often been reported from different regions (Bigelow and Schroeder, 1953; Templeman, 1965; Meron, 1959; Luther, 1961; Chhapgar, 1964; Bennet, 1964; Eswaran, 1967; Gopalan, 1971; Nair and Chellam, 1971). More than 35 cases of twin sharks have been reported during the last century (Anon., 1978). Occurrences of double headed shark and twin shark from Indian waters have earlier been reported by Gopalan (1971) in *Carcharias walbeehmi* and Devadoss (1983) in *Scoliodon laticaudus*. Recently Lazarus (1985) has reported an instance of two-headed 'embryo' of the Javanese cow-nose ray *Rhinoptera javanica* Muller and Henle.

During a routine weekly trawl landing observation at fish landing centre Baithkol, Karwar in January 1991, an unusual shark juvenile of the spade-nose shark *Scoliodon laticaudus* measuring 100 mm in length with two heads and a single trunk was noticed along with a catch of *Scoliodon laticaudus* and other demersal varieties of fishes, trawled from 10-15 m depth. The specimen is deposited at the Museum of the Department of Marine Biology, Karwar. A brief description of the abnormal juvenile is presented in this note, since the present observation is of interest for its significant morphological features different from the previously reported observations of this nature.

Description

The juvenile has two normally formed heads slanting left and right at the angles of about

50° and 60° respectively from linear direction, fusing laterally at the juncture of 5th gill opening of right and left heads. There is the normal complement of five gill openings on the outer sides of both the heads just above the origin of pectorals. On the inner sides of the two heads four gill openings are seen on each head and at the point of 5th gill opening the fusion has taken place (Pl. I A). There are two separate first dorsals placed parallel about 10 mm apart followed by two separate second dorsals closely situated at about 2 mm gap between them. While the point of origin of two first dorsals are in line, the origin of second dorsal on the left side is little towards the anterior side. Ventrally, just behind the fusion point a single umbilical cord is present (Pl. I B). On the ventral side behind the gill openings the common trunk has paired pectoral fins, pelvic fins, claspers and a single anal and caudal fins. All the fins are in normal shape. Various morphometric characters of the body in relation to both heads show close similarity in proportions, excepting the width of the mouth in the left head which is slightly more than that of the mouth in the right head. There are three ridges on the back, the two outer ones originate from respective first dorsal bases and run parallel towards left and right heads, the median ridge is in between them and runs towards the fusion point. Close to the fusion point, the ridge bifurcates and passes to left and right heads.

In fresh, the whole animal was pale white. Upper margins of pectorals, first dorsals,

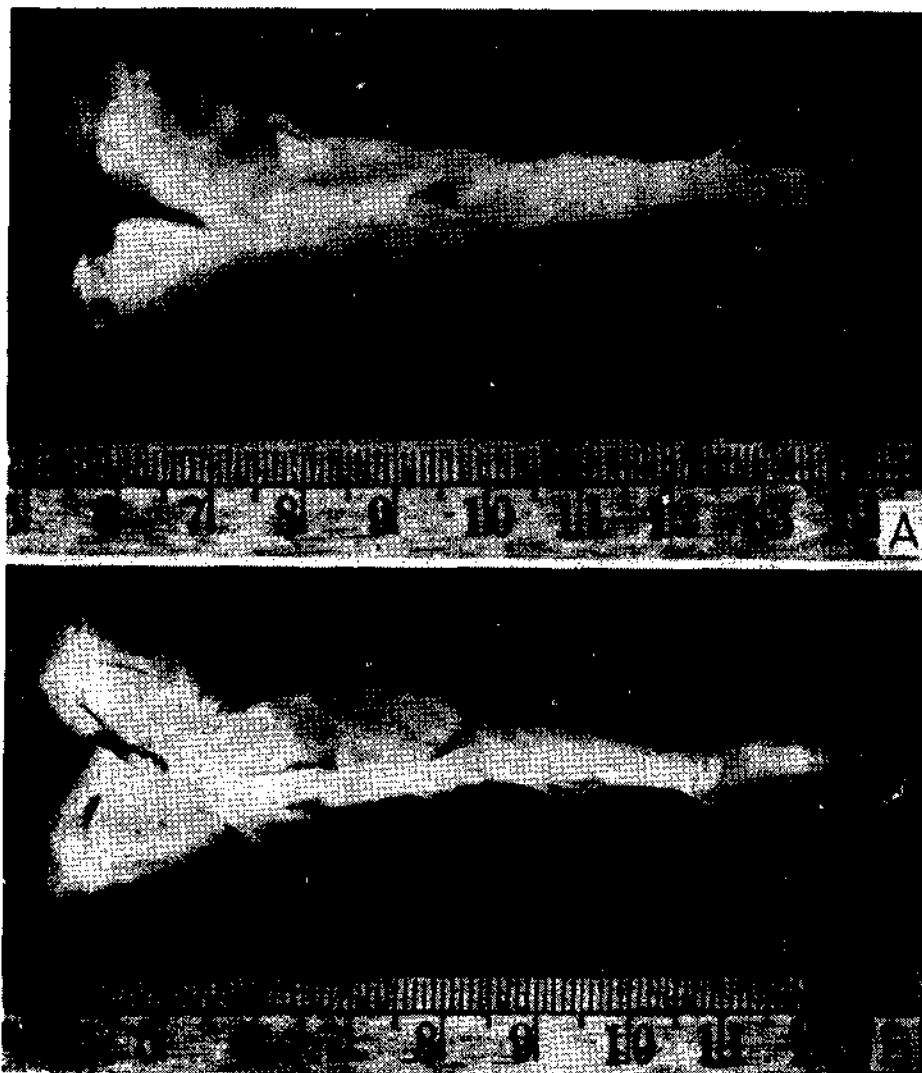


PLATE I. A juvenile spade-nose shark *Scoliodon laticaudus* : A. Dorsal view and
B. Ventral view.

second dorsals, lower margin and terminal lobe of caudal were pink. Outer margins of pelvic and anal fins were brown.

Remarks

An unusual case of embryonic *duplicatus anterior* in a narrow-tooth shark *Carcharhinus remotus* was reported from Gulf of Nicoya on the Pacific Coast of Costa Rica (Anon., 1978). The specimen described had two separate heads fused just behind the eyes with well formed trunk. Devadoss (1983) has reported an instance of monozygotic twins of *Scoliodon laticaudus* from the Porto Novo Coast. They were both males, fused from pectoral region to cloaca and one of them is headless and severely malformed. Similar nature of deformity in a double headed specimen of *Carcharias walbeehmi* has been reported by Gopalan (1971). Most of the siamese twins of sharks reported in the literature were severely

malformed (Anon., 1978). However, in the present observation the specimen possesses two heads fused at the 5th gill opening and rest of the body is well formed with paired first and second dorsals.

Lazarus (1985) has reported the occurrence of two-headed 'embryo' of the Javanese cow-nose ray *Rhinoptera javanica* Muller and Henle. He has attributed the cause for the presence of two heads, four eyes, four spiracles, two mouths, four rows of gills and two caudal spines, to fusion of two embryos at the time of development inside the mother's uterus. The same cause can be attributed to the case of the present material also as its abnormality closely resembles that of the former. However, most teratologists attribute the cause for twinning to the process of early embryonic division initiated by environmental factors such as temperature extremes or physical trauma (Anon., 1978).

Department of Marine Biology,
Karnataka University, Kodibag,
Karwar 581 303.

KUSUMA NEELAKANTAN
B. NEELAKANTAN
C. MUTHIAH

REFERENCES

- ANONYMOUS 1978. *Sea secrets*, 22 (4) : 7-8.
- BENNET, P. S. 1964. *J. mar. biol. Ass. India*, 6 (2) : 316-317.
- BIGELOW, H. B. AND W. C. SCHROEDER 1953. *Mem. Sears Found. Mar. Res.*, 2 : 141-143, 343.
- CHHAPGAR, B. F. 1964. *Copeia*, 3 : 587-589.
- DEVADOSS, P. 1983. *Matsya*, 9-10 : 186-188.
- ESWARAN, C. R. 1967. *J. mar. biol. Ass. India*, 9 (1) : 198-200.
- GOPALAN, U. K. 1971. *J. Bombay nat. Hist. Soc.*, 68 (2) : 465-466.
- LUTHER, G. 1961. *J. mar. biol. Ass. India*, 3 : 198-203.
- LAZARUS, S. 1985. *Ibid.*, 27 (1 & 2) : 189-191.
- MENON, M. 1959. *Publn. Dept. Fisheries, Govt. of Madras*, pp. 191-194.
- NAIR, K. V. S. AND A. CHELLAM 1971. *Indian J. Fish.*, 18 : 193-195.
- TEMPLEMAN, W. 1965. *J. Fish. Res. Bd. Canada*, 22 (1) : 237-238.