

**OBSERVATIONS ON THE EARLY JUVENILE STAGES OF
JOHNIUS CARUTTA BLOCH, *PERVAGER TOMENTOSUS* (LINNAEUS)
AND ON A POSTLARVA OF *PEGASUS VOLITANS* LINNAEUS**

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ABSTRACT

Observations made on the early juvenile stages of a sciaenid, *Johnius carutta* Bloch and a file-fish assigned to *Pervager tomentosus* (Linnaeus) are described. A brief account on a single postlarva of *Pegasus volitans* Linnaeus measuring 6 mm is also included due to the nature of its abnormal pigmentation.

INTRODUCTION

Two early juvenile stages of a sciaenid collected from the shore-seine catches at Tuticorin exhibited considerable differences compared to the descriptions of the earlier workers on this subject. Various morphometric characters observed reveal that the juveniles are close to the identity of *Johnius carutta* Bloch. The smallest recorded size of two early juvenile stages of a monacanthid file-fish collected off Thengapatnam along the southwest coast of India have been described and assigned to *Pervager tomentosus* (Linnaeus). The description on a single post larva of *Pegasus volitans* Linnaeus is also included as it exhibited marked differences in body pigmentation compared to the details of the same species by earlier workers.

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***Johnius carutta* Bloch**

Details on postlarval and early juvenile stages of fishes of the family *Sciaenidae* are restricted to a few species only (Bal and Pradhan, 1945; John, 1950; Nair, 1954; Karamchandani and Motwani, 1954). The present study relates to two early juvenile stages of a sciaenid collected from the catches of the shore-seine operated in the shallow waters of the Silvathurai Lagoon at Tuticorin on 30-7-1970.

The formation of various fins is clear in both the specimens with a black margin in the first spinous dorsal. Ten spines in the first dorsal are followed by twenty eight rays in the second dorsal fin. Two spines and eight rays are visible in the anal fin. In the 16 mm stage, the head is fairly large and the body relatively small (Fig. 1 a). There is a large number of chromatophores throughout the body with more concentration in the nape region and in the caudal peduncle four chromatophores are seen besides patches of pigment spots nearer to caudal base.

In the 19 mm stage the head has become more rounded with a pronounced upper jaw. Posterior part of body looks comparatively slender.

The increased number of chromatophores appears to have arranged in three distinct parallel rows; one along the lateral line and the rest above to it. Reduction of chromatophores is also noticed towards the ventral side. (Fig. 1 b).

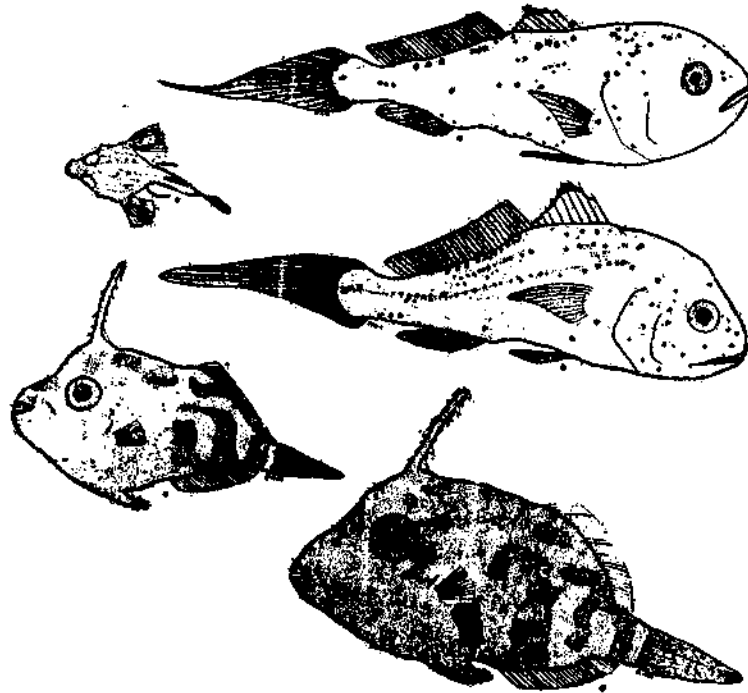


Fig. 1 a. *Johnius carutta* Bloch (16 mm); b. 19 mm stage of a; c. *Pervager tomentosus* (Linnaeus) (11 mm); d. 15 mm stage of c, and e. *Pegasus volitans* Linnaeus (6 mm).

Mohan (1972) reported 30 species in the family *Sciaenidae* so far known from India under 14 genera. Most of the earlier observations on the postlarval stages of sciaenids along the Indian Coast were included and described under *Pseudosciaena*, later found to be not a valid genus (Mohan, 1972; Trewavas, 1977). Weber and Beaufort (1936) reported four species from Indian waters viz., *Pseudosciaena aneus*, *P. axillaris*, *P. coibar* and *P. soldado* characterised by the presence of either dark colouration or dark tinge on the spinous dorsal. In the case of 20 mm stage of *Pseudosciaena aneus* (= *Pennahia macrophthalmus*), John (1950) observed more number of chromatophores on the body in the form of four broken cross bars, a character totally lacking in the 19 mm stage examined at present. In the early juvenile stage of a *Pseudosciaena* sp. described by Nair (1954), the pigmentation noticed was feeble. Karamchandani and Motwani (1954) observed the chromatophore arrangement in the median line only as in the case of *P. coibar* (= *Johnius coibar*). The other two species viz., *P. axillaris* (= *Kathala axillaris*) and *P. soldado* (= *Nibeas soldado*) are also do not correspond with the present specimens especially in the case of fin ray counts.

Hence, the above considerations based on the chromatophore arrangement and other related characters rule out the possibility of the juveniles belonging to any of the above species. But some of the prominent characters such as over hanging upper jaw with nearly horizontal and inferior mouth, rhomboidal caudal fin, dark colouration towards the margin of spinous dorsal, a deep notch between the dorsal fins, the absence of chin barbel and the fin ray counts in the dorsal and anal fins indicate that the early juveniles observed are close to the identity of *Johnius carutta* Bloch.

Based on the sciaenid catch landed by the Govt. of India Exploratory Fisheries Project vessels based at Tuticorin, Bensam (1972) estimated maximum monthly percentage composition of *Johnius carutta* during the May-June period. It is reasonable to assume that spawning takes place during this period as has been indicated by the period of collection of the early juveniles.

***Pervager tomentosus* (Linnaeus)**

Except for a short description by Pillai (1972) details are lacking regarding the early juvenile stages of monacanthid file-fishes from the Indian coastal waters. Hence a short description is presented on two early juvenile stages of a file-fish measuring 11 mm and 15 mm in total length collected off Thengapatnam along the southwest coast of India on 10-12-1970 from the shore-seine catches and incidently this appears to be the smallest recorded juvenile file-fishes along the Indian Coast.

The juvenile file-fishes examined belong to the family *monacanthidae* due to the presence of a movable pelvic spine and a single large isolated dorsal spine. In the 11 mm stage six prominent pigment patches are visible along the body surface, but the pigment spots are more concentrated in the head region (Fig. 1 c). The dorsal and anal fins consist of twenty eight and twenty five fin rays respectively. In the caudal fin twelve rays are clear while ten rays are present in the pectoral fins. The anterior and posterior surfaces of the dorsal spine bear ten and eight numbers of downwardly directed curved barbs besides two upwardly directed ones visible at the proximal end. The pelvic spine is much prominent with minute barbs at the tip.

In the 15 mm stage the snout has become more pronounced (Fig. 1 d). Not much difference is noted in the nature of pigmentation except for the presence of two more pigment patches in the head region. The arrangement of barbs on the dorsal and pelvic spines is retained in this stage. Based on the nature of pigmentation and identical fin ray counts, it is likely that both the specimens belong to the same species. The absence of any pigmentation on the dorsal and anal fins is characteristic of these juveniles.

Of the seventeen species of *monacanthidae*, Weber and Beaufort (1962) described three species from Indian waters viz., *Monacanthus tomentosus* (= *Pervager tomentosus*); *M. choirocephalus* and *M. chinensis* of which the latter two species definitely exhibit higher fin ray counts. Although Munro (1955) reported seven species of *Aluteridae* (= *Monacanthidae*) from the Indo-Ceylon waters only one species viz., *Pervager tomentosus* (Linnaeus) agrees in the fin ray counts with reference to the present materials examined.

Other two species viz., *Leputa cingalensis* Fraser - Brunner and *Paramonacanthus choirocephalus* Bleeker though exhibit identical number of rays in the dorsal fin, variations are seen in the anal fin. Moreover, descriptions on the advanced juveniles of these species by Pradhan *et al.* (1964) and Pillai (1972) also do not correspond with the present specimens. Hence, based mainly on the morphometric characters of various species the juveniles examined reveal close resemblance to *Pervager tomentosus* (Linnaeus) without taking into consideration the arrangement of barbs present on the dorsal spine, a character invalidated later by Berry and Vogele (1961).

***Pegasus volitans* Linnaeus**

The earlier description on the postlarval stages of the so-called dragon fishes of the family *Pegasidae* was by Jones and Pantulu (1958). In the case of *Parapegusus natans* they described the postlarval stages from 7.88 mm to 30.72 mm from the Orissa Coast. Later, Krishnamurthy (1962) observed a 6 mm stage of the same species from Porto Novo. Subsequently Jones and Kumaran (1964) studied the postlarval stages of *Pegasus volitans* from Mandapam area and described *P. natans* as a synonym of *P. volitans*. The present communication relates to a single 6 mm postlarval stage of *P. volitans* collected off Pinnakayal in the Gulf of Mannar on 12-11-1970. This postlarval stage exhibits a particular pattern of body pigmentation and differ considerably from the descriptions of earlier records. Hence a detailed observation on the nature of pigmentation is presented for the sake of future comparison.

The specimens has been identified as belonging to *P. volitans* due to the presence of twelve tail rings in the caudal region. Six series of pigment spots running downwards from the head region *i. e.* from the posterior margin of both the orbits upto the origin of ventral fin are clearly visible, the arrangement of which has been not observed before (Fig. 1 e). These series of pigment spots are arranged in a zig-zag manner and among them the third and sixth are found to extend down still further and appear to diminish thereafter. Moreover, six prominent dendrite chromatophores are clear on the body besides a single pigment spot in the middle of caudal fin rays. Patches of pigment spots are also observed towards the caudal region. In other respects, the specimen observed shows close resemblance to 6 mm stage of Krishnamurthy (1962) and 5.23 mm stage of Jones and Kumaran (1964).

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