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## ON THE IDENTITY OF TWO *POLYNEMUS* SP. (PISCES : PERCIFORMES : POLYNEMIDAE) REPORTED FROM INDIA

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### INTRODUCTION

The threadfin genus *Polynemus* Linnaeus (Perciformes: Polynemidae) is known to be represented by three species, viz. *P. longipectoralis* Weber and de Beaufort, *P. melanochir* Valenciennes and *P. paradiseus* Linnaeus from Indian waters (Talwar and Jhingran, 1991; Rao *et al.*, 2000). *P. longipectoralis* is regarded as a junior synonym of *Polynemus dubius* Bleeker that is known only from Malaysia and Indonesia (Motomura, 2003, 2004). Similarly *P. melanochir* is known to occur in Viet Nam, Malaysia and Kalimantan, Indonesia (Motomura and Sabaj, 2002). Although, Hamilton (1822) described three species, viz., *Polynemus aureus*, *P. risua* and *P. toposui*, from India, all these are relegated to junior synonymy of *P. paradiseus* Linnaeus (Motomura *et al.*, 2002). Except for *P. paradiseus*, occurrence of other *Polynemus* species from India seems to be doubtful (Froese and Pauly, 2009) and that required ascertaining by examination of the reported specimens.

#### Identity of *Polynemus longipectoralis*

While recording the polynemid fishes of India, Talwar and Kacker (1984) did mention the occurrence of *P. longipectoralis* in the Hooghly estuary in the “key to species” based on an unpublished paper (Talwar and Mukherjee, in press). Talwar and Jhingran (1991) provided the description of that species. *P. longipectoralis* is now considered as a junior synonym of *P. dubius* Bleeker (Motomura, 2003). Distribution of *P. dubius* is currently known from Malay Peninsula, Sumatra and Kalimantan, Indonesia (Motomura, 2004). Hence, its occurrence from India seems doubtful. The specimens in the National Zoological Collections, Z.S.I., Kolkata have been sorted out and examined for proper identity.

*Materials* : 2 samples, 118-124 mm standard length, Reg. No. F 7860/2, collected from Bakkhali, Hooghly River, West Bengal on 30-01-1981 by P. Mukherjee and T. K. Chatterjee; 15 samples, 82 to 120 mm in standard length, collected from Hooghly estuary (unregistered), all labeled as *Polynemus longipectoralis* Weber and de Beaufort, found among the National Zoological Collections, Z. S. I., Kolkata.

*Diagnosis* : Body depth at first dorsal fin origin 3.7 to 4.5, head length 3.7 to 4.0, and upper jaw length 6.6 to 7.7 in standard length. Lip on lower jaw well developed. Teeth on vomer and palatine, in broad bands. Eyes small, its diameter more than 1.3 in snout length. Posterior margin of preopercle serrated. First dorsal fin with VII spines, second dorsal fin with I spine and 14 or 15 soft rays. Anal fin with II spines and 12 rays. Pectoral fin with 15 to 18 unbranched rays and 7 free filaments, the longest extending beyond tip of caudal fin. Pectoral fin insertion near midline of body. Lateral line with 68 to 70 pored scales. Gill rakers 31 to 33 on first arch. Body grayish black dorsally and yellow ventrally; paired fins yellow; pectoral filaments yellowish.

*Remarks* : All the specimens examined belong to the genus *Polynemus* Linnaeus, characterized in having pectoral fin inserted near midline of body; small eyes, its diameter more than 1.3 in snout length; and preopercle with a serrated posterior margin.

Weber and de Beaufort (1922) considered both *P. longipectoralis* and *P. dubius* as valid distinguishing them by number of lateral line scales, *i.e.* 84 vs 67. Motomura (2003) regarded *P. longipectoralis* as a junior synonym of *P. dubius* after examining the holotype of

the former. It is stated that the diagnostic characters (7 pectoral filaments, 8 spines in the first dorsal fin, 79 pored lateral line scales, 13 scale rows below lateral line, vomer with villiform teeth and posterior portion of maxilla less than orbit diameter) found in the holotype of *P. longipectoralis* are consistent with those of specimens of *P. dubius* Bleeker (Motomura, 2004).

The Indian record of *P. longipectoralis* (= *P. dubius*) is based on its distinction from *P. paradiseus* by the number of pectoral filaments (first two or three) extending beyond tip of caudal fin (Talwar and Kacker, 1984) following Fischer and Whitehead (1974). The fragile filaments may be broken before determination process started and so, that single character can not be considered as the only identifying feature. Moreover, the authors examined several specimens in the fish markets of Kolkata those are having only two filaments extending beyond caudal fin tip, but are having only 7 spines in first dorsal fin, 2 spines in anal fin and about 70 lateral line scales. Hence, Indian specimens of the genus *Polynemus* having 7 spines in first dorsal fin do possess 7 free pectoral filaments, of which upper two filaments certainly longer than body length and the third may or may not extend beyond caudal fin tip.

*P. dubius* is distinguished in having 8 spines in first dorsal fin, 3 spines in anal fin and about 75 pored lateral line scales (Motomura, 2004). Although Talwar and Jhingran (1991) mentioned 8 spines in first dorsal fin, has not given importance to this character, but simply followed Weber and de Beaufort (1922) while giving the description. All the specimens examined by us were having 7 spines in first dorsal fin; 2 spines in anal fin and about 70 pored lateral line scales.

Based on the above cited observations, the specimens identified as *P. longipectoralis* from Indian coast are no way similar to *P. dubius* and these are now being determined as *Polynemus paradiseus* Linnaeus, 1758.

#### **Identity of *Polynemus melanochir***

Rao *et al.*, (2000) reported *Polynemus melanochir* Valenciennes from Andaman and Nicobar Islands, India. In current parlance of nomenclature it may be considered as *Polynemus melanochir melanochir* Valenciennes, while a second sub-species, *Polynemus melanochir dulis* has been reported only recently

(Motomura and Sabaj, 2002) from freshwaters of Cambodia.

**Materials :** Two specimens collected from Kamorta, Nicobar group of Islands by H. S. Mehta and Kamla Devi on 12-11-1989, which were labeled as *Polynemus melanochir* Valenciennes bearing Reg. No. 1546 and having a standard length of 73 and 99 mm, were examined for confirmation.

**Diagnosis :** Body depth at first dorsal fin origin 32.3 to 33.0% and head length 32.9 to 33.7% of standard length. Lips on lower jaw well developed, villiform teeth restricted to upper surface. Teeth in narrow bands on jaws, palatine and ectopterygoids. The space between the premaxillary bands and between palatine and ectopterygoids about twice or more than its width. Vomerine tooth patch inconspicuous. Posterior margin of preopercle serrated. First dorsal fin with 8 spines, first one minute, second spine stronger than others. Second dorsal fin with 1 spine and 11 soft rays. Anal fin with 3 spine and 15 soft rays, its base shorter than head length but longer than second dorsal fin base. Pectoral fin inserted in lower third of body. Pectoral fin with 13 or 14 unbranched rays and 7 free filaments, the third and fourth filaments longest, extending beyond the base of caudal fin. Lateral line with 50 pored scales; lateral transverse scales 6/10. Gill rakers about 50. Body yellow in colour; pectoral filaments brown.

**Remarks :** Both the specimens were having pectoral fins inserted on lower third of body, but not close to midline of body. In *Polynemus* sp., pectoral fin insertion is supposed to be near midline of body. Hence, the generic allocation is certainly wrong and so, this is a misidentification of some other species belonging to family Polynemidae.

Further examination of the specimens reveal a combination of characters such as lower jaw teeth not fully exposed but covered partly by lips; first dorsal fin with 8 spines, the first one minute; anal fin with 3 spine and 15 rays, its base shorter than head length; base of pectoral fin shorter than upper jaw length; caudal fin lobes not produced or filamentous; lateral line extending to lower caudal fin lobe; premaxilla and palatine teeth bands narrow, space separating these bands twice or more width of each band. This led the authors to consider assigning it to the genus *Filimanus* Myers, 1936.



The misidentified specimens : *P. longipectoralis* from Hooghly River (top) and *P. melanochir* from Nicobar (bottom)

The specimens have 7 free pectoral filaments, the longest extending beyond base of caudal fin; anal fin with 15 soft rays and body depth at first dorsal fin origin contained 32.3 to 33.0% of standard length. Lateral line with 50 pored scales, with 6 and 10 scale rows above and below lateral line. Gill rakers about 50. Body yellow in colour and pectoral filaments are brown. This leads to determine it to be *Filimanus perplexa* Feltes, 1991.

Feltes (1991) recognized that the polynemid species commonly identified as *P. melanochir* was not true *P. melanochir*, but in fact represented a separate undescribed species, i.e. *Filimanus perplexa* Feltes. This Indian report discussed above is another example to support his view.

As observed by Feltes (1991), Myers (1936) described *Filimanus* as a new genus on the basis of a single specimen (USNM 72742, 14 mm SL), but had misidentified the species as *Polynemus melanochir* (non Valenciennes, 1831). Bleeker (1849) erroneously

referred to this species as *P. melanochir* and this name has been used by subsequent authors including Weber and de Beaufort (1922). While recognizing only two genera, *Eleutheronema* Bleeker and *Polynemus* Linnaeus in the family, Weber and de Beaufort (1922) separated the genus *Polynemus* in to four groups based on number of free pectoral fin filaments leading to such misidentification.

The distinction at generic level using teeth band structure following Feltes (1991) and Motomura (2004) gives this an identity other than *Polynemus* and ascertain the occurrence of *F. perplexa* in coastal waters of India. *F. perplexa* has been reported from the Great Nicobar Island, only recently as a new distributional record from India (Mishra and Barman, 2009).

## CONCLUSION

Apart from *Polynemus paradiseus* Linnaeus, two other species of the genus *Polynemus* Linnaeus, viz., *P. longipectoralis* Weber and de Beaufort (= *P. dubius*

\* Not seen in original

Bleeker) and *P. melanochir* Valenciennes, are recorded from India. Close examination of the representative specimens of these two species revealed that their report actually based on misidentification of *Polynemus paradiseus* Linnaeus and *Filimanus perplexa* Feltes. This establishes the fact that among the species under genus *Polynemus*, only *P. paradiseus* is distributed along Indian coast.

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