

First record of scorpionfish genus *Neomerinthe* Fowler, 1935 (Actinopterygii: Scorpaeniformes: Scorpaenidae) from Indian coast

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Received 10 June 2013; revised 21 June 2013

First report of the genus *Neomerinthe* Fowler, 1935 with record of *Neomerinthe megalepis* (Fowler, 1938) from Indian coastal waters is documented. *N. megalepis* differentiated from other congeneric species of Indian Ocean like *N. amplisquamiceps* by having 4th dorsal spine longest, lower jaw protruding and flat occiput; *N. bauchotae* by having a slit behind last hemibranch and more pectoral fin rays; *N. rotunda* by having lateral lacrimal spine, four suborbital and preopercular spine.

[Key Words: Scorpaenidae, *Neomerinthe megalepis*, Digha, Paradip, Bay of Bengal, India.]

Introduction

Neomerinthe megalepis (Fowler, 1938) is a little known uncommon species distributed in Western central Pacific oceans: South China Sea; Philippines; Taiwan and Indonesia¹. Species belongs to the family Scorpaenidae under Scorpaeninae subfamily and Scorpaenini tribe. The family Scorpaenidae contains 418 species belonging to at least 56 genera². They are highly diverse marine fish family with mixture of complex morphological and meristic characteristics and distributed in all tropical and temperate seas, on relatively near shore hard bottoms and reefs or associated with coral rubble, from the surface to a depth of 150 metre³.

The Genus *Neomerinthe* Fowler, 1935 created on the basis of one specimen of *N. hemingwayi* and at present total 12 species are reported worldwide under this genus^{1,4}. From Indian coastal waters till date no representative of Genus *Neomerinthe* is reported. During the collection of ornamental fauna along the east coast of India, the authors collected four specimens identified as *Neomerinthe megalepis* (Fowler, 1938). It forms

the first report of the genus *Neomerinthe* from Indian waters as well as the present investigation describes the first report of the species *Neomerinthe megalepis* (Fowler, 1938) from Indian waters.

Materials and Methods

During the research programme on “Ornamental Fauna Survey of East Coast of India” authors collected three specimens (SL: 56.41 mm-61.49 mm) from Shankarpur fishing harbor, West Bengal (Reg. No. MARC/ZSI/F3036, date of Collection: 18.02.13) and one specimen (SL: 50.90 mm) from Paradip fish landing centre, Odisha (Reg. No. MARC/ZSI/F3037, date of Collection: 22.03.13).

The method of measurements and counts were carried out as per Motomura *et al* (2011)⁵. Head spine terminologies were followed as per Randall and Eschmeyer (2002)⁶ and Motomura (2004)⁷. Abbreviations SL and HL represent standard length and head length respectively. All specimens were measured with a digital caliper to with resolution of 0.01 mm. Vertebrae were counted by digital X-ray. After identification fresh photography was taken and then specimens

examine in this studies has been preserved in 10% solution and deposited in museum of MARC, ZSI.

Results

Neomerinthe megalepis (Fowler, 1938): Big scale scorpionfish

Scorpaena megalepis Fowler, 1938: 56, fig, 22 (type locality: vicinity of Hong Kong, 21°54'N, 114°46'E)

Meristic formula

D: XII, 9; A: III, 5; P: 18-19; V: I, 5; GR: 17-18.

Characters

A small species with moderately deep and compressed body (Fig. 1 A), its depth 2.95-3.13 in SL. Head moderately large with numerous spines and 2.03-2.15 in SL. Two small lateral lacrimal spines divergent from each other from base and just projecting over the upper jaw, anterior lacrimal spine directed posteroventrally and smaller than posterior one. Two stout, slightly curved nasal spine directed dorsally; preocular spine stout and curve; supraocular spine small; supraopercular tentacle smaller than orbit diameter present. Slightly curved short 3 postocular spines and 2 short tympanic spine directed dorso-posteriolaterally; two Pterotic and nuchals spines with broad base located behind tympanic spine, upper posttemporal spine very small. Occipital pit flat, covered with small scales; two backwardly directed postorbital spines, posterior one is larger. Suborbital ridge with 4 spines, anterior most one present on lateral face of lacrimal bone, 4th spine separated by small space from preopercular spine which are 4 in number, the uppermost preopercular spine is largest and close to end of suborbital ridge, 2nd

preopercular spine small. Opercle with 2 divergent spines, posterior tip of spines no reaching to opercular margin and no ridges between the spines; dorsoposterior dermal flap of operculum reach to 4th dorsal spine. All the morphometric measurements were presented in Table 1.

Mouth large and tip of lower jaw protruding slightly beyond tip of upper jaw; posterior tip of maxilla reaching vertical to the posterior margin of eye. Villiform teeth in bands on both jaws, palatine teeth present. Snout short and convex; interorbital space narrow, concave interorbital ridge continuous with base of tympanic spine; eye large. Scales on body moderately large size except pectoral fin base which are small; lateral line high and complete extending base of caudal fin; 24-25 pored lateral line scales; 4 scale rows between 4th dorsal and lateral line, 6 scale rows between 6th dorsal spine and lateral line, 5 scale rows between last dorsal and lateral line, 11-12 scale rows below lateral line. Gill rakers : 5-6+12, of them few at both end rudimentary; vertebrae : 24 (Fig. 1B).

Dorsal fin originate vertical to just above the last opercular spine tip, 4th dorsal spine longest. Anal fin originate just below the 3rd dorsal soft ray, anal fin with 2nd spine longest and strongest. Pectoral fin tip rounded, middle fin rays are longer; tip of pectoral fin just reaching 1st anal spine, few pectoral fin rays are branched. Ventral fin origin vertically more or less just below the dorsal fin origin, ventral fin tip reaching to anus. Caudal fin rounded, caudal peduncle depth 8.02-8.32 in SL and length 5.26-5.92 in SL.

Table 1. Morphometric measurements of *Neomerinthe megalepis* (Fowler, 1938).

Characters	Ratio in Standard Length (mm)	% of Standard Length
Head Length	2.03-2.15	46.56-48.17%
Body Depth	2.95-3.13	32.82-33.87%
Eye diameter	6.59-7.4	13.15-15.58%
Snout length	12.15-12.56	7.96-8.17%
Maxilla	4.2-4.4	22.59-23.81%
1 st dorsal spine	10.83-11.45	8.73-9.73%
2 nd dorsal spine	6.96-7.84	12.75-14.36%
3 rd dorsal spine	5.18-6.15	16.25-18.47%
4 th dorsal spine	4.48-4.92	19.72-21.77%
5 th dorsal spine	5.34-6.09	18.06-18.61%
Last dorsal spine	7.14-7.78	12.87-14.01%
1 st anal spine	11.09-12.7	7.56-8.3%
2 nd anal spine	4.91-5.41	17.96-19.45%
3 rd anal spine	6.1-6.86	14.58-15.55%
Pre dorsal length	2.58-2.68	37.26-38.79%
Pre anal length	1.37-1.5	67.42-68.39%
Pre ventral length	2.51-2.76	36.27-36.46%
Caudal peduncle depth	8.02-8.32	12.01-12.46%
Caudal peduncle length	5.26-5.92	16.9-18.86%
Pectoral fin length	3.26-3.77	28.49-30.72%
Ventral fin length	3.94-4.18	23.93-25.39%
	Ratio In Head Length (mm)	% of Head Length
Eye Diameter	3.16-3.45	29.4-31.5%
Snout length	5.7-6.1	16.29-17.45%
Interorbital space	9.74-9.86	8.84-10.14%
Maxilla	1.96-2.24	46.81-47.04%
Supraocular tentacle	3.39-3.84	26.1-29.4%
4 th dorsal spine	2.18-2.49	42.23-44.2%

Colour

Body with variegated reddish brown in colour, more deep on sides and pale in ventral part. Head,

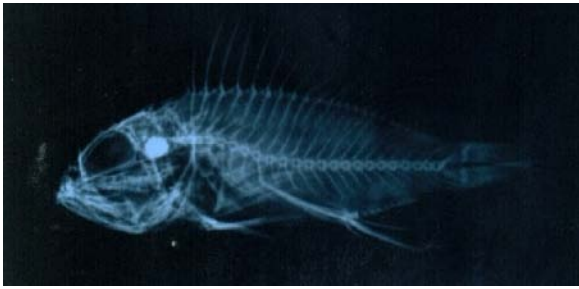
opercle, nape, upper jaw brown, lower jaw pale. Dorsal spine with median dark blotches more deep in 8th to 10th spine; soft dorsal with dark band just over the base and light reddish in upper part. Anal fin pale red with median dark band more prominent on 2nd to 4th soft rays. Pectoral fin pale red with numerous dark spots, more on upper half. Ventral fin whitish and pale red in tip. Caudal fin reddish white with dark spots forming indistinct bands. Preserved specimen whitish with scattered dark patches on sides (Fig. 1C.).

Discussion

Worldwide the Subfamily Scorpaeninae represent with 16 genera²⁻³ of which only nine genus is reported from Indian waters. Genus *Neomerinthe* is very close to the some species of genus *Pontinus*, Poey, 1860 of the family Scorpaenidae but the former genus having some branched pectoral fin rays and a slit on last hemibranch^{1,8-9}, except in *N. bauchotae*. *Neomerinthe* also share similarities with some species of genus *Sebastapistes* Gill, 1877 but later genus having different dorsal fin rays counts and convex occiput (flat in *Neomerinthe*)³⁻⁴. Genus *Neomerinthe* differ from *Parascorpaena* by not having forward directed hooked posterior lacrimal spine (In *Parascorpaena* posterior lacrimal spine hooked forward); from *Pteroidichthys* and *Rhinopias* by having ctenoid scales on flank and head and body less compressed (In *Pteroidichthys* and *Rhinopias* cycloid scales on flank) ; from *Scorpaena* by having flat occiput (In *Scorpaena* Occiput with shallow pit); from *Scorpaenoides* by



A



B



C

Fig 1: A: *Neomerinthe megalepis* (Fowler, 1938); B: X-ray of *N. megalepis* showing vertebrae; C: Preserve specimen of *N. megalepis* showing colour at preserve condition and supraocular tentacle

having XII dorsal spines and presence of palatine teeth (*Scorpaenoides* having no palatine teeth and XIII dorsal spines); from *Taenianotus* which skin at gill opening partially united to isthmus (whereas in *Neomerinthe* skin at gill opening connected to isthmus narrowly anteriorly) and from *Scorpaeniopsis* by having palatine teeth. Comprehensive review of those complicated genus still not yet done. This investigation

demands taxonomic revision of those genus and comprehensive survey of *Neomerinthe* around Indian Ocean.

N. megalepis differentiated from other congeneric species of Indian Ocean like *N. amplisquamiceps* by having 4th dorsal spine longest, lower jaw protruding and flat occiput (3rd dorsal spine longest and jaw subequal in *N. amplisquamiceps*); *N. bauchotae* by having a slit

behind last hemibranch and more pectoral fin rays (slit absent except in *N. bauchotae* and 16-17 pectoral fin rays in *N. bauchotae*); *N. rotunda* by having lateral lacrimal spine, four suborbital and preopercular spine (lateral lacrimal spine absent, three suborbital and five preopercular spines in *N. rotunda*)^{3,5,11}.

The species *N. megalepis* was first described by Fowler (1938)¹⁰ based on the specimens from Station D.5305 at 21°54'N, and 114°46'E China Sea, vicinity of Hong Kong in 37 fathoms. This species is earlier reported from Hong Kong, Taiwan, Indonesia (Nias Island), New Caledonia and Wallis and Futura Island in Central Pacific. This report describes the first record of the genus *Neomerinthe* along with species *N. megalepis* from Indian water and new distributional record of the species with westward range extension.

Acknowledgement

Authors are thankful to Director, Zoological Survey of India, for providing necessary facilities for the work.

References:

1. Froese R. and Pauly D. (eds), *Fishbase*. World Wide Web electronic publication. Online version: www.fishbase.org (Accessed 6, June, 2013).
2. Nelson, J.S., *Fishes of the World*. 4th Ed. (John Wiley and sons, Inc., Hoboken, New Jersey) 2006, pp1-601.
3. Poss, S.G., Scorpaenidae. In: *FAO Species Identification Guide for Fishery Purposes*. The Living Marine Resources of the Western Central Pacific. Vol. 4. Bony Fishes Part 2 (Mugilidae to Carangidae) (Carpenter K.E. & Niem V.H., eds), (1999):2659-2756. Rome: FAO.
4. Poss, S.G. and Duhamel, G., *Neomerinthe bauchotae*, a new scorpionfish (Scorpaenidae) from St. Paul and Amsterdam islands (southern Indian Ocean), with comments on the limits of the genus, *Cybium*, 15 (1991) 93-102.
5. Motomura, H., Bearez, P. and Causse, R., Review of Indo-Pacific specimens of the subfamily Scorpaeninae (Scorpaenidae), deposited in the museum national d'Historie naturelle, Paris, with description of a new species of *Neomerinthe*, *Cybium*, 35 (2011) 55-73.
6. Randall, J.E. & Eschmeyer. W.N., Revision of the Indo-Pacific scorpionfish genus *Scorpaenopsis*, with descriptions of eight new species, *Indo-Pacif. Fish.*, 34 (2002) 1-79.
7. Motomura H., Revision of the scorpionfish genus *Neosebastes* (Scorpaeniformes: Neosebastidae) with descriptions of five new species, *Indo-Pacif. Fish.*, 37(2004) 1-76.
8. Eschmeyer, W.N., A systematic review of the Scorpionfishes of the Atlantic Ocean (Pisces: Scorpaenidae). *Occ. Pap. Calif. Acad. Sci.*, 79 (1969) 1-130.
9. Eschmeyer, W. N. and Randall, J.E., The scorpaenid fishes of the Hawaiian Islands, including new species and new records (Pisces: Scorpaenidae). *Proceedings of the California Academy of Science (fourth series)*, 40 (1975) 265-334.
10. Fowler, H.W., Descriptions of new fishes obtained by the United State Bureau of fisheries steamer *Albatross* chiefly in Philippines seas and adjacent water. *Proc. US Natl. Mus.*, 85 (1938) 31-135.
11. Motomura, H., *Scorpaeniopsis stigma* Fowler, 1938, a junior synonym of *Pheanacoscorpius megalops* Fowler, 1938, with comments on the type series of *P. megalops* (Teleostei: Scorpaenidae), *Zoological Studies*, 47 (2008) 774-780.