

**MEGANTHIAS KINGYO (KON, YOSHINO AND SAKURAI, 2000)
(PERCIFORMES: SERRANIDAE) FROM BITUNG, NORTH
SULAWESI, INDONESIA: FIRST RECORD FROM THE
SOUTHWESTERN PACIFIC OCEAN**

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ABSTRACT

Eight specimens of *Meganthias kingyo* were collected from Bitung, North Sulawesi, Indonesia between 2008 - 2010. The specimens were caught from about 70-150 m off Lembeh Island. *M. kingyo* differs from *M. natalensis* by having the following characteristics: pores lateral line scales (43 vs. 49); pectoral rays (16 vs. ii.14); body depth (47.1 vs. 51.9); head length (31.0 vs. 38.2), body depth (47.1 vs. 52.9), caudal peduncle depth (12.1 vs. 14.2), pectoral fin length (28.0 vs. 34.3), pelvic fin length (33.6 vs. 31.1), anal fin base length (19.4 vs. 22.2), caudal fin length (66.9 vs. 35.3) and longest dorsal fin ray (48.5 vs. 27.4). Previously, this species has been reported from Houzan-sone, off Miyako and Yaeyama Islands in Okinawa, Japan; and herein is recorded from off Lembeh Island, North Sulawesi, Indonesia.

Keywords: Anthiine, *Meganthias kingyo*, Indonesia, New record, Serranidae

INTRODUCTION

Anthinid fishes are usually colourful, small in size and live in hard-bottom habitat at depths of about 100-400 m (Randall and Heemstra, 2006). Because of their small size, the difficulty of catching them and their low commercial value, anthinid fishes are insufficiently represented in museum collections. Some species were described as new species based on a single specimen, or a few specimens from one or two localities (Randall, 1996; Chen and Shao, 2002). Among 30 species of his genus revision, Randall (1980) remarked 18 species of these were identified from one or two specimens, and eight species based on a single specimen.

The subfamily Anthiinae comprises about 200 species which are mostly distributed in the Indo-West Pacific (Anderson, 2006; Schneider and Janke, 2013). The genus *Meganthias* was revised by Randall and Heemstra (2006) based on a type specimen of *Sacuranatalensis* (Fowler, 1925). Worldwide, there are four species of this genus: (i) *Meganthias kingyo* (Kon, Yoshino and Sakurai, 2000), which was previously known as *Holanthias kingyo* from off Miyako and Yaeyama Islands, Okinawa, Japan (Randall and Heemstra, 2006); (ii) *M. natalensis*, previously known as *Odontanthias natalensis* (Fowler, 1925) from South Africa; (iii) *M. carpenteri* Anderson, 2006 collected off the coast of Nigeria, Atlantic Ocean (Anderson, 2006); and (iv)

Meganthias filiferus Randall and Heemstra, 2008 collected from the Andaman Sea, off the southwestern coast of Thailand that was previously identified as *Holanthias chrysostictus* (Günther, 1872) (Sirimontraporn and Bussarawit, 1993).

Among the four species in the genus, *Meganthias kingyo* has only been known from Okinawa (Japan) and now is reported here as a new record from Indonesia in the western Pacific Ocean.

MATERIALS AND METHODS

Methods for species count and measurement follow Randall and Heemstra (2006). Additional measurements were made for lengths of all dorsal-fin and anal-fin spines, soft rays (from tip to its base) and suborbital width (minimum distance between orbit and upper jaw). All measurements were made with a digital caliper to the nearest 0.01 mm. Cyanine blue was used to examine and count scales. All lengths are reported as standard length (SL) and head length (HL). Institutional code follows Eschmeyer and Fricke (2014) with an additional abbreviation LBRC-F for LIPI Bitung Reference Collection – Fish, Technical Implementation Unit for Marine Biota Conservation, Indonesian Institute of Sciences.

RESULTS

Meganthias kingyo (Kon, Yoshino and Sakurai, 2000)
(Table 1; Figs. 1-2)

Meganthias kingyo (Kon, Yoshino and Sakurai, 2000) (Randall and Heemstra, 2006); p. 29, fig. 1N, plate VII A,B, tables 1-3; Randall and Heemstra (2007): p. 5; Schneider and Janke (2013): p. 1; Anderson, Jr. (2006): p. 404;

Synonym: *Holanthias kingyo* Kon, Yoshino and Sakurai, 2000: p. 75, Table 1, fig. 1; type locality: Houzan-sone, off Miyako I., Okinawa, Japan.

Materials examined

LBRC-F 0383, male, 185.5 SL, Girian fish market, Bitung, North Sulawesi, Indonesia, hook and line, no detail data on depth, 15 October 2008, purchased by T. Peristiwady; LBRC-F 1363, male, 192.5 SL, Girian fish market, Bitung, North Sulawesi, Indonesia, hook and line, no detailed data on depth, 16 November 2009, purchased by T. Peristiwady; LBRC-F 1382, female, 180.5 SL, LBRC-F 1388, male, 209.5 SL, Girian fish market, Bitung, North Sulawesi, Indonesia, hook and line, no detailed data on depth, 2 December 2009, purchased by T. Peristiwady; LBRC-F 1427, female, 166.5 SL, Girian fish market, Bitung, North Sulawesi, Indonesia, hook and line, no detailed data on depth, 11 January 2010, purchased by T. Peristiwady; LBRC-F 1677, female, 133.8 SL; LBRC-F 1678, female, 162.5 SL and LBRC-F 1680, male, 199.0 SL, Girian fish market, Bitung, North Sulawesi, Indonesia, hook and line, no detailed data on depth, 26 August 2010, purchased by T. Peristiwady.

Description

Counts and measurements are shown in Table 1. Data in parentheses are the mean values. Dorsal-fin rays X, 17-18; anal rays III, 9; all dorsal and anal rays branched, the last joined to base; pectoral-fin ray ii, 13-14; pelvic rays I, 5, all rays branched; lateral-line scales 44-49; scales above lateral line to origin of dorsal fin 9-11; scales below lateral line to origin of anal fin 28-29; gill rakers 11-12 + 25-26 (total rakers 36-38).

Body ovoid, relatively deep, strongly compressed, the width 2.6-2.8 (2.7) in body depth; head length 2.5-2.7 (2.6) all in SL; eye large, the orbit diameter 3.0-3.5 (3.2) in HL; snout length 4.0-5.1 (4.4) in HL; interorbital space convex, the least bony width 2.8-3.3 (3.1) in HL, nostrils two, narrowly separated, just in front of eye; anterior nostril small, with a produced posterior flap; posterior nostril larger; least caudal peduncle depth 2.6-2.9 (2.7) in HL; caudal peduncle length 1.8-2.0 (1.9) in HL.

Dorsal profile of head from dorsal origin steeply convex, mouth rather large, highly oblique; lower jaw projecting slightly beyond

upper jaw when mouth closed. Upper jaw 2.2 – 3.2 (2.6) in HL, with a band of villiform teeth, outermost teeth largest, canine-like; teeth on lower jaw villiform, outermost teeth largest, canine-like. Opercle with three flat spines, middle spine longest and slightly closer to lower spine than upper most; posterior border of preopercle serrated along margin, smooth at angle; sub-opercle and inter-opercle weakly serrated. Gill rakers elongated and pointed.

Dorsal fin originating above and slightly before upper end of gill opening; dorsal spines strong, 3rd to 10th spines similar in length, first spine shortest; anterior soft dorsal rays not forming filament, third or fourth longest; anal spines stout, 2nd spine more than three fourths length of 3rd spine; outer margin of soft anal fin vertical; pectoral fin sub-symmetrical, reaching to origin of anal fin; pelvic fin inserted slightly before lower base of pectoral fin; caudal fin U-shaped with tip of lobes rounded.

Scales moderately large; scales above lateral line to origin of dorsal fin 9-11, scales below lateral line to origin of anal fin 28-29; head densely scaled except lips, throat and frontals; bases of dorsal fin soft rays, anal fin soft rays, and caudal and pectoral fins scaled. Lateral line complete, arched above pectoral fin, highest under 5th dorsal spine.

M. kingyo differs from others species of the genus *Meganthias* in having lower dorsal fin rays (16-17 vs. 17-18 in others species except *M. natalensis*); higher anal fin rays (9 vs. 8 in others species except *M. natalensis*); lower pectoral fin rays (14 vs. 16).; lower scales above Ll (9.5-10.5 vs. 3-9); higher scales below Ll (27.5 vs. 16-26); higher diameter of eye (9.8-13 vs. 7.4-9.1) and higher interorbital width (11.9-12.9 vs. 9.0-9.1).

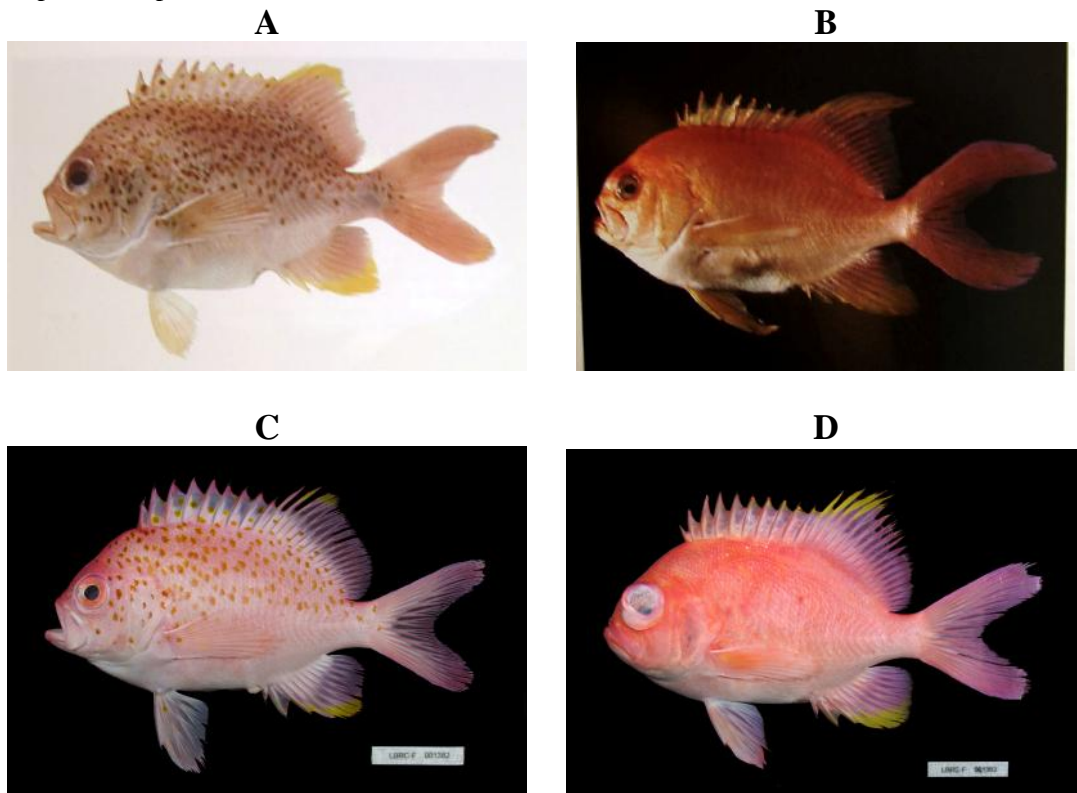


Figure 1. *Meganthias kingyo*, (A). URM-P 28315, paratype, female, 236 mm (after Yoshino), (B). URM-P 18748, holotype, male, 278 mm (after Yoshino); (C). LBRCF 1382, female, 180.5 mm SL; (D). LBRCF 383, male, 185.5 mm SL

Color when fresh

The colouration of male and female *Meganthias kingyo* identified in this study matches with the description given by Kon et al., 2000). The male species are described as: head and body are pale red dorsally, becoming pale pink ventrally; spinous and distal half of middle soft-rayed portion of dorsal fin yellow, other soft rays pale red; anal fin pale red with a distal yellow band; caudal fin pale red, becoming reddish violet marginally; pectoral fin base yellowish, becoming reddish distally, upper margin white; pelvic fin reddish. Female: head and

body pink dorsally, becoming white ventrally, with many scattered dark brown spots dorso-laterally; dorsal fin pinkish white, with scattered dark brown spots, caudal fin pink; anal fin pink with a yellow sub-marginal band; pectoral fin pinkish with white upper and lower margins, dark brown spots on base; pelvic fin yellow anteriorly, gradually becoming pinkish-white posteriorly (Kon et al., 2000).

Color in formalin

Male uniformly pale; female uniformly pale, with scattered dark brown spots.

Table 1. Counts and measurements of *Meganthias kingyo* (Kon, Yoshino and Sakurai, 2000).

	URM-P 18748 Holotype	URM-P 28315 Paratype	Indonesian Specimen	
	Male	Female	Male (4 specimens)	Female (4 specimens)
% SL				
Standard length	277.6	236.2	185.5 - 209.5	133.79 - 180.5
Dorsal fin rays	X, 17	X, 16	X, 17-18	X, 18
Anal fin rays	III, 9	III, 9	III, 9	III, 9
Pectoral fin rays	ii, 14	ii, 14	ii, 13-14	ii, 14
Pored lateral line scales	46	47	44 - 49	45 - 48
Scales above lateral line	10.5	9.5	9 - 11	9 - 11
Scales below lateral line	27.5	27.5	28 - 29	28 - 29
Total gill rakers	34	36	37 - 38	36 - 38
Head length	36.7	38.1	37.2 - 38.1 (37.7)	38.1 - 39.3 (38.8)
Body width	-	-	18.8 - 20.8 (19.7)	18.8 - 20.8 (19.9)
Body depth	51.1	54.4	49.8 - 53.8 (51.5)	49.5 - 54.7 (52.3)
Predorsal length	-	-	34.7 - 36.4 (35.9)	34.0 - 38.2 (36.4)
Caudal peduncle depth	14.5	14.1	13.9 - 14.6 (14.1)	13.6 - 14.8 (14.3)
Caudal peduncle length	20.4	20.4	20.2 - 21.2 (20.6)	19.5 - 21.2 (20.5)
Pectoral fin length	33.9	29.9	33.6 - 35.3 (34.3)	32.9 - 35.5 (34.2)
Pelvic fin spine length	16.1	16.3	18.5 - 18.7 (18.6)	18.7 - 20.1 (19.3)
Pelvic fin length	33.9	29.9	30.5 - 32.1 (31.1)	29.6 - 33.0 (31.2)
Anal fin base	-	-	21.9 - 22.6 (22.3)	21.7 - 23.0 (22.1)
Anal fin spine length I	6.8	7.2	7.0 - 7.6 (7.3)	6.9 - 8.5 (7.8)
Anal fin spine length II	11.2	13.4	11.7 - 13.6 (12.9)	12.7 - 15.0 (13.9)
Anal fin spine length III	14.5	15.8	14.5 - 16.0 (15.4)	16.0 - 17.0 (16.3)
Longest anal fin soft ray	-	-	24.5 - 28.0 (26.2)	24.1 - 25.9 (25.0)
Caudal fin length	51	40.9	34.1 - 40.12 (37.5)	31.7 - 34.2 (33.1)
Caudal concavity	47.7	40.5	17.0 - 19.8 (18.3)	12.9 - 17.5 (15.3)
Dorsal fin base	-	-	63.7 - 67.4 (66.1)	66.1 - 67.6 (67.0)
Longest dorsal fin soft ray	-	-	26.8 - 32.3 (28.8)	24.3 - 27.14 (25.9)

Dorsal fin spine length I	6.3	5.8	5.9 - 6.7 (6.3)	5.5 - 7.6 (6.6)
Dorsal fin spine length II	8.6	10.2	9.2 - 10.1 (9.7)	10.3 - 11.0 (10.7)
Dorsal fin spine length III	12.1	12.8	11.7 - 14.1 (13.3)	14.3 - 16.3 (14.9)
Dorsal fin spine length IV	12.4	14.4	13.9 - 15.3 (14.6)	15.8 - 17.5 (16.4)
Dorsal fin spine length X	13.3	13.8	12.6 - 15.5 (14.3)	13.7 - 16.2 (15.0)
Snout length	10.4	9.5	8.7 - 9.3 (9.1)	7.7 - 9.0 (8.4)
Eye diameter	9.8	11.1	10.0 - 12.6 (11.2)	11.8 - 13.8 (13.0)
Interorbital width	12.9	11.9	11.6 - 13.1 (12.3)	11.9 - 12.3 (12.0)
Maxillary length	18.3	18.4	13.01 - 17.3 (16.0)	12.1 - 17.6 (14.8)

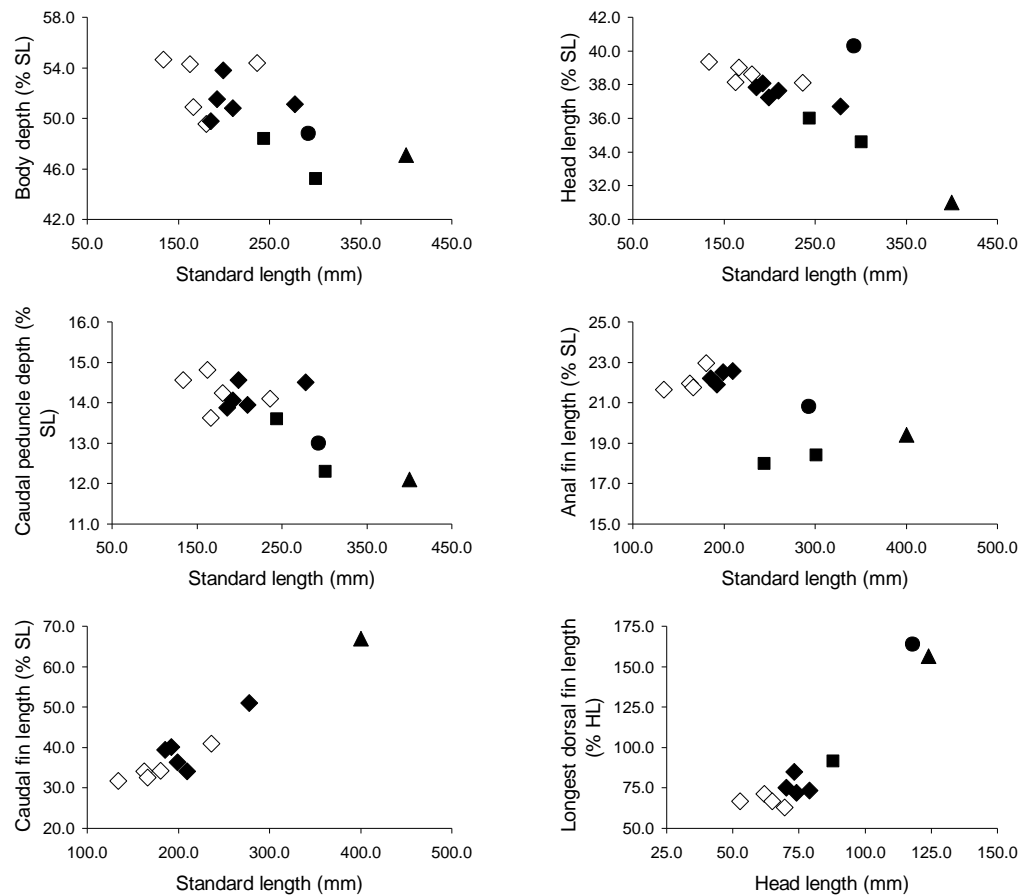


Figure 2. Ratio of body depth, head length, caudal peduncle depth, anal fin length, caudal fin length and longest dorsal fin length in *Meganthias kingyo* (male: \diamond , female: \circ), *M. filiferus* (\square), *M. natalensis* (\triangle) and *M. carpenter* (∇).

Distribution

Meganthias kingyo has been reported from Houzan-sone, off Miyako and Yaeyama Islands, Okinawa, Japan (Kon

et al., 2000) and is now recorded from off Lembah Island, North Sulawesi, Indonesia.

Remarks

The measurements of the Indonesia specimens are identical to the original description of *Meganthias kingyo* (Kon et al., 2000) with regard to head length, body depth, caudal peduncle depth, caudal peduncle length and interorbital width. However, the percentage of the dorsal fin spine length, anal fin spine length and caudal fin length does not conform to the percentage measurements of the type specimens. These differences, however, may be due to the size of the specimens observed in the current study.

The colouration of fresh specimens is identical to that of type specimens. The current specimens reported from Indonesia are thus identified as *Meganthias kingyo* (Kon, Yoshino and Sakurai, 2000).

Meganthias kingyo is most similar to *M. natalensis*, in sharing the following characters: dorsal fin soft rays 17 or 18, anal fin soft rays 9, pored lateral line scales 46 or 47, 9 1/2 or 10 1/2 scale rows above lateral line to origin of dorsal fin and gill rakers 11-12 + 25-26. It differs from the later in having outer margin of the soft anal fin vertical (vs. gently convex *M. natalensis*) and scattered dark brown spots on the body in female (vs. spots absent in *M. natalensis*) (Kon et al., 2000). Compared to *M. filiferus* and *M. carpenteri*, it is also different in the following characteristics: body depth (Fig. 2A), head length (Fig. 2B), caudal peduncle depth (Fig. 2C), anal fin length (Fig. 2D), caudal fin length (Fig. 2E) and longest dorsal fin length (Fig. 2F).

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