

# FIRST RECORD ON *ODONTANTHIAS FLAGRIS* YOSHINO AND ARAGA, 1975 (PERCIFORMES: SERRANIDAE) IN INDONESIAN WATERS

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## ABSTRACT

Two specimens of *Odontanthias flagris* have been caught from Bitung, North Sulawesi in June 2010. Previously, known locations of this species are Okinawa and Nishino-shima, Japan. *O. flagris* is very similar with *O. rhodopeplus*. They shares following characters: dorsal fin rays X, 13; anal fin rays III, 7; pectorals fin rays 17–18; scales above lateral line 7; scales below lateral line 19 and gill rakers on lower limb 28. Characters differing *O. flagris* from *O. rhodopeplus*, *O. chrysostictus* and other six species appear in the percentage of orbit diameter. In addition, *O. flagris* has shorter pelvic fin rays but longer caudal peduncle and third dorsal fin spine. Its morphological features, distribution, remarks and photo of species are given in this paper.

**Keywords:** *Odontanthias flagris*, Serranidae, Anthiinae, Indonesia

## INTRODUCTION

Fishes of the genus *Odontanthias* are small size species living in rugged-bottom habitat beyond scuba-diving depths, and have no or little commercial value (Randall, 1996; Chen and Shao, 2002; Randall and Heemstra, 2006). Therefore it is rarely caught by divers, gill-netting or trawling, and is not well represented in museum collections (Randall, 1996; Chen and Shao, 2002).

Members of this genus had previously been considered belong to the genus *Holanthias* (Heemstra & Randall, 1986), but they differ from this eastern Atlantic genus in having a lunate or deeply emarginate caudal fin (vs. near-truncate to rounded or rhomboid) and no accessory scales on the body (vs. numerous accessory scales on body) (White, 2011). The genus *Odontanthias* Bleeker is characterized as follows: dorsal fin rays X, 12–19; anal fin rays III, 7–8; pectoral fin rays 15–19; lateral line complete or incomplete; vertebrae 26; interorbital space convex; mouth not large; tongue,

vomer, palatines and mesopterygoids with a large patches of small villiform teeth; posterior margin of preopercle strongly serrate with a prominent flat spine or enlarge spine at the angle; and body depth 1.9–2.7, head length 2.35–2.85 both in standard length (SL) (Randall and Heemstra, 2006).

Thirteen (13) species of *Odontanthias* have been reported from Indo-Pacific region (Randall and Heemstra, 2006), whereas Indonesian waters have five species: *O. borbonius*, *O. chrysostictus*, *O. randalli*, *O. rhodopeplus* and *O. unimaculatus* (Masuda *et al.*, 1984; Smith and Heemstra, 1986; Kimura *et al.*, 2003; Kuitert and Debelius, 2006; Randall and Heemstra, 2006; Peristiwady 2006; 2011 and White, 2011). *O. flagris* found in Bitung (North Sulawesi, Bitung) brings the total species number of this genus known in Indonesian waters to six species.

## MATERIALS AND METHODS

Two specimens of *Odontanthias flagris* were collected from Girian fish markets, Bitung, North Sulawesi, Indonesia. Specimens were photographed in fresh condition and then preserved in 10% formalin for about one week. Afterwards, they were transferred into 70% ethanol for further examination and permanent preservation.

Meristic and morphometric methods generally followed Randall and Heemstra (2006) with several additional measurements (all spines and rays length of dorsal and anal fins and suborbital width). All measurements were made with digital calipers to the nearest 0.01 mm.

The fish proportion length measured were reported as standard lengths (SL) and body depth (BD). The specimens have been deposited at the Technical Implementation Unit for Marine Biota Conservation, Research Centre for Oceanography, LIPI, Bitung (North Sulawesi). Institutional code followed Fricke and Eschmeyer (eds) (2012), except for LBRC-F which stands for LIPI Bitung Reference Collection-Fish. Valid record of the fish specimen referred to the data from Eschmeyer & Fricke (eds.) (2012).

## RESULTS AND DISCUSSION

Daily visits during 2010 at Girian fish market (Bitung, South Sulawesi) brought opportunity to find and collect two specimens of *Odontanthias flagris* Yoshino and Araga, 1975 (Figure 1; Table 1). This species has never been recorded in Indonesian waters before.

Due to its preference for relatively deep water and because of their occurrence over or inside hard substrate, they cannot apt to be taken by fishermen using trawls or gill-net. The anthiine specimens in this study were taken using hook and line by fishermen targeting deep water groupers or snappers such as *Epinephelus*, *Pristipomoides* and *Etelis*.

### Taxonomy

*Odontanthias flagris* Yoshino and Araga, 1975

English name: Anthiine fish

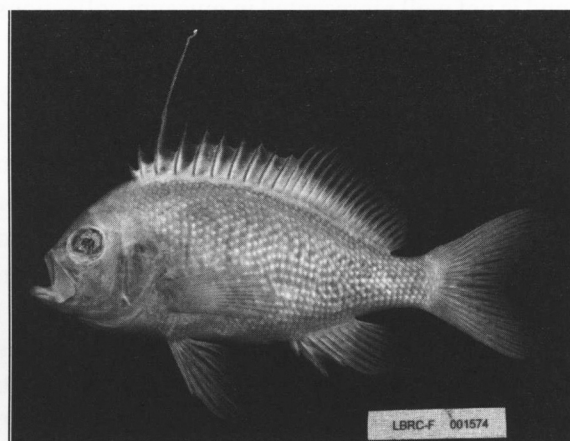
Indonesian standard name: Nona Manis Bendera.

*Odontanthias flagris* Yoshino and Araga in Masuda *et al.* (1975): 219, pl. 51, figure B (holotype, type locality, Okinawa); Randall and Heemstra (2006): 15, pl. III B, Tables 1–3, figures. 1 F, 3.

**Material examined.** LBRC-F 1574, 136.9 mm SL, no data on depth, hook and line, Girian, Bitung, North Sulawesi, Indonesia, June 2<sup>th</sup>, 2010, collected by T. Peristiwady; LBRC-F 001575, 149.5 mm SL, same data as LBRC-F 001574; URMP 0505, (non-type specimen), 179.5 mm SL, Ryukyu Islands, Okinawa, Japan, collected by T. Yoshino; URMP (label loss), (non-type specimen), 189.5 mm SL, Ryukyu Islands, Okinawa, Japan, collected by T. Yoshino; URMP 0506, (non-type specimen), 191.5 mm SL, Ryukyu Islands, Okinawa, Japan, collected by T. Yoshino.

**Description.** Measurements and counts are shown in Table 1. Dorsal fin rays X, 18; anal fin rays III, 7; all dorsal and anal fin rays branched, the last joined to the base; pectoral fin rays 17–18, uppermost two rays and lowermost ray unbranched; pelvic fin rays I, 5, all rays branched; lateral line scales 42–43; scales above lateral line to origin of dorsal fin 8; scales below lateral line to origin of anal fin 22; scales above lateral line to base of middle dorsal fin 3; oblique rows of scales on check 7–8; gill rakers 11- (28–29) (total gill rakers 39–40).

Body deep and compressed, the width 37.19–42.57 in BD; head length: 22.39–24.07 all in SL; eye large, the orbit diameter: 26.9–29.1 in HL; snout length 22.51–24.2 in HL; interorbital space convex, the least bony width 26.9–29.1 in HL; least caudal peduncle depth 39.39–40.21 in HL; caudal peduncle length 65.69–68.51 in HL.



**Figure 1.** *Odontanthias flagris*, LBRC-F 1574, 136.9 mm SL.

Mouth terminal, oblique and not large, forming an angle of ca.  $60^\circ$  to horizontal line of head, the lower jaw projecting; maxilla reaching slightly anterior to a vertical through center of pupil, the upper jaw length 43.82–44.32 in HL; each anterior of upper jaw with a pair of stout canine teeth, inner upper jaw and lower jaw with rows of minute teeth, outer rows with several teeth longer than inner teeth, half distance of lower jaw with 2–3 stout and recurved canines. Nostrils are slightly upper of horizontal line passing center of pupil, the flap almost reaches the anterior of nostril aperture; sensory pore found below and in front of anterior nostril, other sensory pores at around lachrymal, infra-orbital and below lower jaw.

Opercle with three flat spines, middle one largest and tip, slightly closer to lower than upper spine; upper opercular spine blunt; posterior margin of preopercular edge of preopercle with 27, angle of preopercle with a large flat spine about more than one third way to margin of subopercle; serrae on ventral edge of preopercle 0–1; margin of subopercle with 2–6, margin of interopercle with 2, opercular flap pointed.

Lateral line complete, broadly arched over pectoral fin closed to dorsal fin base, running parallel to dorsal body contour below dorsal fin of 6<sup>th</sup> spine; its highest point below base of 8<sup>th</sup> dorsal spine.

Scales ctenoid; predorsal part of head scaled anteriorly reaching base of upper lip; maxilla and mandible scaled; preorbital from nostrils to below front of orbit naked; small scales on base of all fins; scales on two upper and lower lobes caudal fin rays almost reaching tip, base of the middle caudal fin with scales to about one third of caudal fin; base of pectoral and anal fins with small scales.

Origin of dorsal fin above the post-temporal, predorsal length 91.93–94.40 in HL; first dorsal spine short 55.38–57.55 in second dorsal spine, second dorsal spine 21.25–24.13 in third dorsal spine; third dorsal spine longest, 121.67–148.48 in HL; third dorsal ray longest forming filament, 67.27–84.94 in HL; origin of anal fin beneath third dorsal ray; first anal spine 52.04–58.12 in length of second spine; second anal spine slightly shorter than third, 92.21–93.05 in length of third spine; second or third anal ray longest, 67.11–71.94 in HL; caudal fin deeply emarginated, the upper and

lower lobes not forming filament, the fin length 102.00–103.88 in SL; caudal concavity 9.37–11.24 in SL; pectoral fin not pointed, the tenth ray longest, reaching base of anus, 93.48–94.50 in HL; origin of pelvic fin on a vertical through between base of third and fourth dorsal spine; second pelvic ray longest, the length 55.38–57.55 in HL.

Color when fresh (Figure 1): body pink with a yellow pink dorsally, pale pink ventrally, with a yellow blotches running from interorbital space to anterior of dorsal fin base; a second yellow stripe from upper lip, passing suborbital space to above the biggest flat spine at opercle; body with posterior margin of scales whitish; yellow bright botches at pectoral fin base; spinous portion of dorsal fin pale pink, upper part of dorsal spine portion with a large pale yellow area from the first to anterior part of dorsal fin rays; incised portion of dorsal spine bright pink, basal soft portion of dorsal fin pale pink, the outer part pale yellow; pectoral fin pale pink; inner rays of pelvic fins pale pink, outer rays yellow, pelvic spine pale pink; anal fin yellowish; other rays and membranes pale pink; caudal fin pink, each lobe yellow stripe at inner and outer lobe.

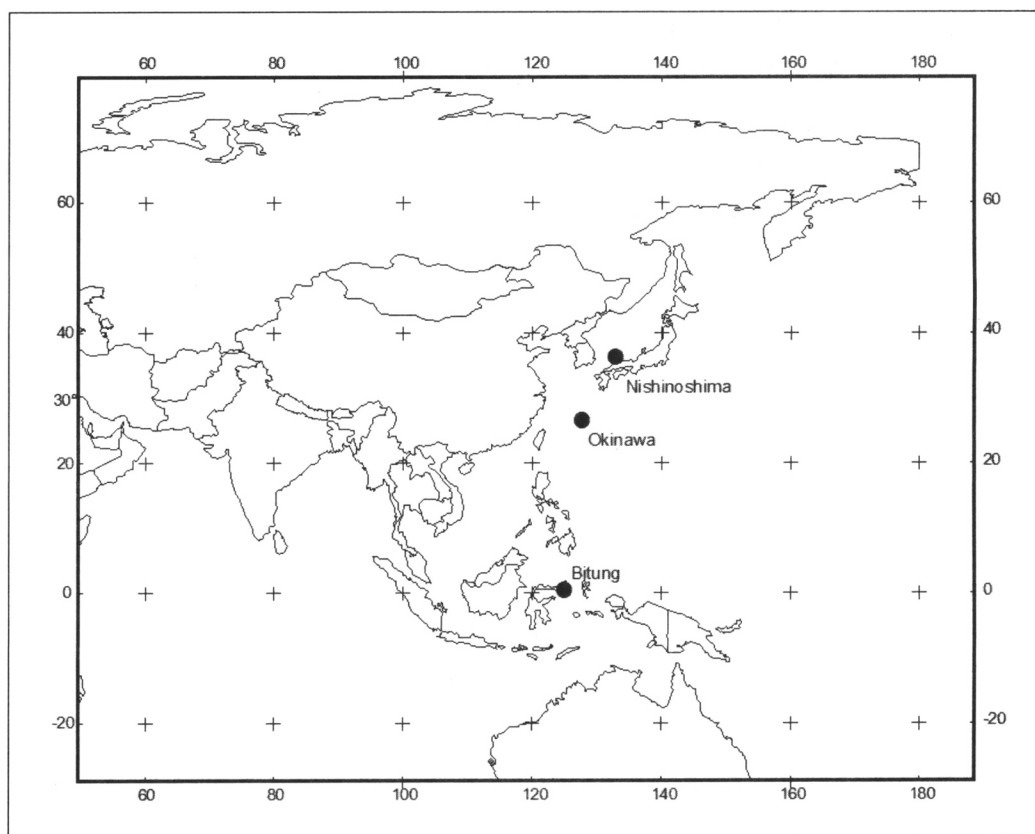
Color after preservation: head and body uniformly pale whitish, posterior tip of scales on body whitish forming a horizontal and diagonal lines.

**Distribution and ecological notes:** Initially this species was described as new species from Okinawa, Japan from the depth of about 70–80 m. All specimens both from Japan and Indonesia had long third dorsal spine. This species from other locations was reported from Nishino-shima, Ogasawara Islands (Randall and Heemstra, 2006) and was now recorded also in Bitung, Sulawesi Island, Indonesia (Figure 2).

**Remarks:** The meristic data of *Odontanthias flagris* was most similar to *O. rhodopeplus*, sharing the following characters: dorsal fin rays X, 13, anal fin rays III, 7, pectorals fin rays 17–18, scales above lateral line 7; scales above lateral line 19 and gill rakers on lower limb 28. If dorsal, anal and pelvic fin shape and coloration were ignored, *O. flagris* would seem most closely related to *O. katayamai* by body proportion and caudal fin shape. The body proportions data among *O. rhodopeplus*, *O. chrysostrictus* and *O. flagris* were

**Table 1.** Count and Measurement of *Odontanthias flagrais*, expressed as percentages of the body depth and Mean Value between brackets

	Japanese Specimen n= 3	Indonesian Specimen n=2
Standard length (mm)	179.50–191.50 (186.83)	136.88–149.50 (143.19)
Dorsal fin rays	(X, 17-18)	(X, 18)
Anal fin rays	(III, 7)	(III, 7)
Pectoral fin rays	17–18 (17.67)	17–18 (17.5)
Pelvic fin rays	(I, 5)	(I, 5)
Scales on lateral line	41–44 (42.33)	42–43 (42.5)
Scales above lateral line	8–8.5 (8.33)	8–8 (8)
Scales below lateral line	20–21 (20.33)	22–22 (220)
Gill rakers on upper limb	11–11 (11.00)	11–11 (11)
Gill rakers on lower limb	28–29 (28.67)	28–29 (28.5)
Total gill rakers	39–40 (39.67)	39–40 (39.5)
Head length	76.48–82.97 (79.40)	75.78–78.08 (76.93)
Body width	37.93–42.40 (40.41)	37.19–42.57 (39.88)
Predorsal length	66.89–74.74 (72.03)	69.66–73.71 (71.69)
Prepelvic length	85.85–99.13 (91.47)	85.31–86.22 (85.77)
Preanal length	150.24–166.58 (158.61)	151.63–153.10 (152.36)
Dorsal-fin base length	159.10–178.68 (171.62)	157.23–160.79 (159.01)
Anal-fin base length	43.31–48.35 (45.13)	43.33–45.62 (44.48)
Pectoral-fin length	73.82–77.50 (76.07)	70.84–73.79 (72.31)
Pelvic-fin length	64.71–71.25 (68.91)	66.00–67.81 (66.91)
Caudal-peduncle depth	30.86–31.80 (31.42)	29.85–31.39 (30.62)
Caudal-peduncle length	56.13–64.73 (59.56)	51.29–51.92 (51.60)
1th dorsal-fin spine	13.99–16.05 (15.28)	13.65–14.25 (13.95)
2nd dorsal-fin spine	21.37–22.57 (22.06)	22.25–24.64 (23.44)
3rd dorsal-fin spine	168.15–192.65 (182.96)	92.20–115.93 (104.07)
4th dorsal-fin spine	26.39–30.76 (29.07)	30.97–33.03 (32.00)
5th dorsal-fin spine	29.63–31.89 (30.76)	31.80–34.97 (33.39)
6th dorsal-fin spine	31.58–32.76 (32.17)	31.08–34.00 (32.54)
7th dorsal-fin spine	31.50–32.68 (32.09)	31.50–32.05 (31.78)
8th dorsal-fin spine	30.79–31.49 (31.14)	30.96–32.27 (31.61)
9th dorsal-fin spine	31.49–32.37 (31.93)	31.29–31.63 (31.46)
10th dorsal-fin spine	28.51–31.41 (30.41)	31.63–32.12 (31.87)
1th dorsal fin rays	13.99–41.08 (30.71)	40.30–44.76 (42.53)
Longest dorsal fin rays (3th)	45.20–49.80 (46.95)	52.52–64.37 (58.44)
Last dorsal fin rays	18.61–19.52 (19.10)	16.92–17.26 (17.09)
1th anal fin spine	17.78–19.60 (18.61)	18.02–18.82 (18.42)
2nd anal fin spine	32.96–35.92 (34.59)	32.38–34.62 (33.50)
3rd anal fin spine	35.47–39.14 (37.81)	34.79–37.55 (36.17)
Longest anal rays (3th)	52.77–58.57 (55.83)	52.40–54.52 (53.46)
Caudal fin length	73.70–97.51 (85.43)	77.29–81.10 (79.20)
Pelvic spine length	42.51–47.25 (45.25)	43.24–43.61 (43.42)
Snout length	17.64–19.11 (18.38)	17.06–18.90 (17.98)
Orbit diameter	18.14–22.21 (20.72)	23.15–23.80 (23.48)
Interorbital width	21.55–22.69 (22.06)	20.39–22.72 (21.55)
Upper jaw length	31.28–34.44 (32.73)	33.21–34.61 (33.91)
Caudal concavity	31.54–44.85 (36.82)	29.50–39.19 (34.35)



**Figure 2.** Geographic distribution of *Odontanthias flagris*

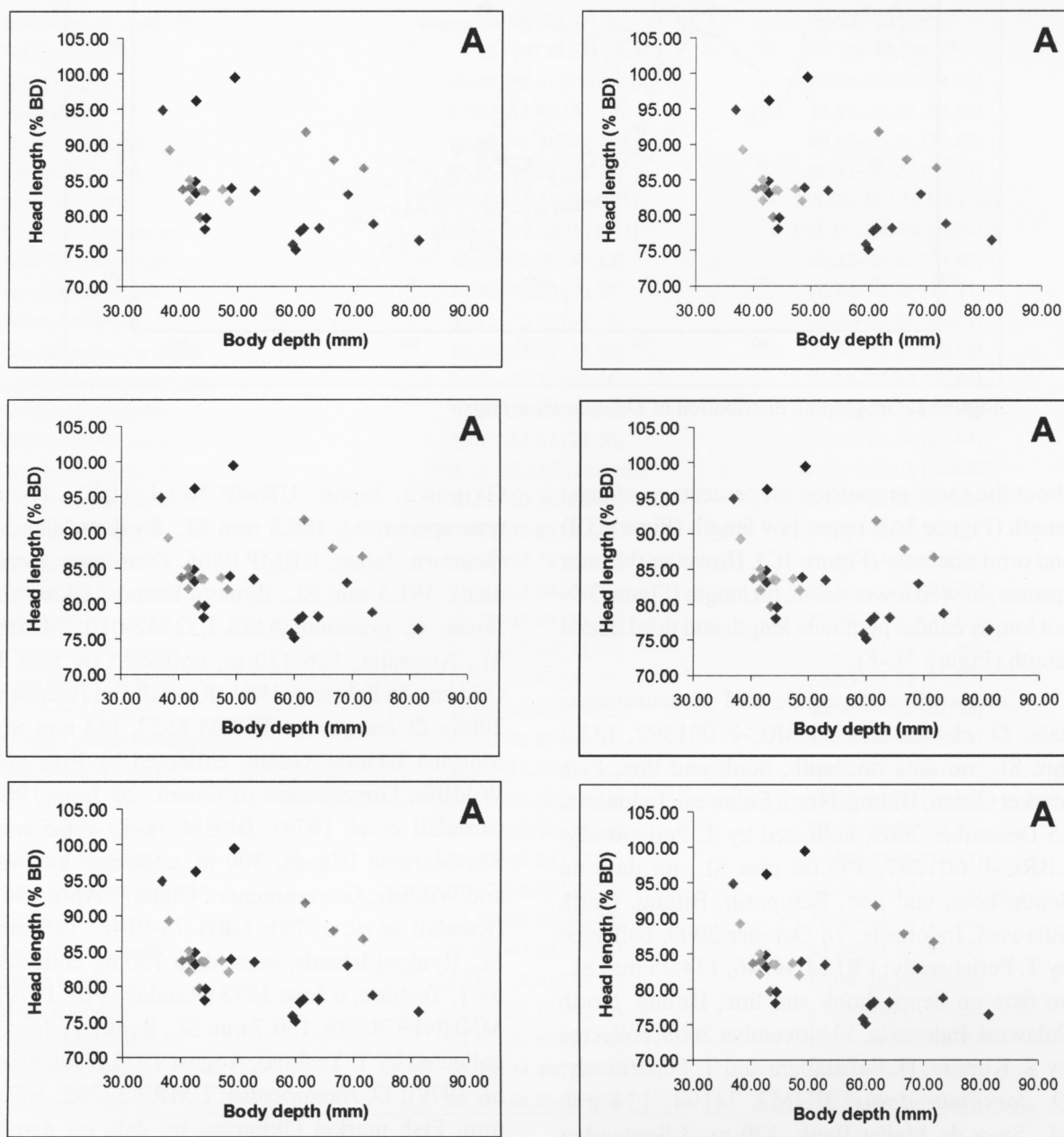
about the same proportion on percentage of head length (Figure 3A), upper jaw length (Figure 3B) and orbit diameter (Figure 3C). However the later species showed lower pelvic fin length (Figure 3D) but longer caudal peduncle length and third dorsal length (Figure 3E-F).

Comparative materials and measurements data: *O. chrysostictus*: LBRC-F 001392, 133.3 mm SL, no data on depth, hook and line, Fish market Girian, Bitung, North Sulawesi, Indonesia, 15 December 2009, collected by T. Peristiwady; LBRC-F 001287, 109.66 mm SL, no data on depth, hook and line, Batuputih, Bitung, North Sulawesi, Indonesia, 16 October 2009, collected by T. Peristiwady; FRLM 34846, 134.23 mm SL, no data on depth, hook and line, Bitung, North Sulawesi, Indonesia, 13 November 2008, collected by S. Kimura, H. Sakakibara and T. Peristiwady; *O. dorsomaculatus*: HUMZ 74194, 134 mm SL, Saya de Malha Bank, 120 m, 3 September 1977; HUMZ 73951, 110 mm SL, Saya de Malha Bank, 120 m, 2 September 1977 (Katayama and Yamamoto 1986); *O. flagris*, URMP 0505, (Non type specimen), 179.5 mm SL, Ryukyu Islands,

Okinawa, Japan, URMP NO LABEL, (Non type specimen), 189.5 mm SL, Ryukyu Islands, Okinawa, Japan, URMP 0506, (Non type specimen), 191.5 mm SL, Ryukyu Islands, Okinawa, Japan; *O. grahmi*: AMS I.32142-010, 94 mm SL, Australia, 126-130 m, collected by Ken J. Graham, 16 February 1991 (Randall and Heemstra 2006); *O. katayamai*: BPBM 8527, 163 mm SL, Mariana Islands, Guam, collected by Fish and Wildlife, Government of Guam, 20 June 1968 (Randall *et al.* 1979); BPBM 5848, 126.5 mm SL, Mariana Islands, 300 m, collected by Fish and Wildlife, Government of Guam, 7 April 1967 (Randall *et al.* 1979); URB 78-0148, 145 mm SL, Ryukyu Islands, more than 100 m, collected by T. Yoshino, 6 June 1973 (Randall *et al.* 1979); MNHN1978/136, 150.7 mm SL, Ryukyu Islands, collected by T. Yoshino, August 1973 (Randall *et al.* 1979); *O. rhodopeplus*: UMRP 37795, 167.5 mm, Fish market Okinawa, no data on depth, collected by T. Yoshino; UMRP 0492, 160.5 mm, Fish market, Okinawa, no data on depth, collected by T. Yoshino; UMRP 10524, 159 mm, Fish Market Okinawa, no data on depth, collected

by T. Yoshino; *O. tapui*: MNHM 1978/459, 141 mm, Society Islands, Tahiti, about 300 m, collected by Jean Tapu, April 1975 (Randall *et al.* 1979); RUSI 4680, 157 mm SL, Cook Islands, collected by Ronald Powell, July 1964; BPBM 17345, 127 mm SL, Society Islands, Tahiti, collected by Anthony Nahacky, 1973 (Randall *et al.* 1979); *O. unimaculatus*: LBRC-F 1391, 93.73 mm SL, Girian Fish Market, 14 December 2009; LBRC-F

1394, 101.71 mm SL, Girian Fish Market, 14 December 2009; LBRC-F 1635, 94.21 mm SL, Girian Fish Market, 29 July 2010; LBRC-F 1704, 116.52 mm SL, Girian Fish Market, 17 September 2009; LBRC-F 1715, 110.8 mm SL, Girian Fish Market, 20 September 2009; LBRC-F 1738, 103.44 mm SL, Girian Fish Market, 25 September 2010; LBRC-F 1747, 97.69 mm SL, Girian Fish Market, 27 September 2010 (Peristiwady, 2011);



**Figure 3.** Ratio of head length (A), upper jaws length (B), orbit diameter (C), pelvic fin length (D), caudal peduncle length (E) and third dorsal spine length (F) of nine species. *Odontanthias chrysostictus* (blue); *O. dorsomaculatus* (black); *O. flagris* (red); *O. grahami* (pink); *O. katayamai* (brown); *O. rhodopeplus* (light grey); *O. tapui* (light blue); *O. unimaculatus* (light brown); *O. wassi* (green)

*Odontanthias wassi*: BPBM 29373 (holotype), 1 specimen, 121.0 mm SL, American Samoa, Ofu Island, off Ofu Village, about 100 meters, hook and line, collected by Paul Pedro (local fishermen), 2 September 1983;

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