

Plectranthias yamakawai, a New Anthiine Fish from Ryūkyū Islands, with a Revision of the Genus *Plectranthias*

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Abstract A new species of anthiine fish, *Plectranthias yamakawai*, is described, based upon six specimens from Ryūkyū Islands. *P. yamakawai* was previously reported as *P. anthioides* (Günther) by Kamohara and Yamakawa (1968). With description of this new species, a revision of the genus *Plectranthias* found in the waters of Japan is presented.

The genus *Plectranthias*, which was established by Bleeker (1873) for *Plectropoma anthioides* Günther taken from Manado in Celebes, has long been believed to be represented by a single species. *Plectranthias anthioides* was known from Celebes (Günther, 1871: 655), Arafura Sea (Günther, 1880: 37, pl. 16, fig. E), Japan (Schmidt, 1931: 61, fig. 8; Katayama, 1957: 147, fig. 1). But a specimen reported by Kamohara and Yamakawa (1968: 8, fig. 4) from Amami-Ōshima, one of Ryūkyū Islands, is different from the descriptions and figures given by several authors. In the collections made by the present author from Okinawa Islands in 1967–1970, 5 specimens which are considered to be conspecific with Günther's specimens and 4 specimens which are conspecific with Kamohara and Yamakawa's specimen were found. A careful examination of these specimens as well as 2 specimens collected by Takeshi Yamakawa in 1969 from Amami-Ōshima revealed that the specimens of the latter group represent a new species, which is described here.

Counts and measurements were made according to standard practice as outlined by Hubbs and Lagler (1947). All specimens studied here have been preserved in 10% formalin.

Genus *Plectranthias* Bleeker, 1873

Key to the Japanese species

- A₁ Several grayish orange patches on top of head and upper half of body along base of dorsal, and a row of irregular longitudinal patches of the same color runs along middle on side of body; 3rd dorsal spine longer than 4th one, 3rd spine longest (Fig. 1A).....*Plectranthias anthioides* (Günther)
- A₂ Many dark-greenish speckles scattered on its upper half of body with fringed yellow; a reddish blotch as large as orbit below lateral line near middle of body; 3rd dorsal spine a little shorter than 4th one, 4th or 5th spine longest (Fig. 1B)...
.....*Plectranthias yamakawai* sp. nov.

Plectranthias anthioides (Günther)
(Japanese name: Izu-hanadai)
(Figs. 1A and 2)

Plectropoma anthioides Günther, 1871: 655
(Manado, Celebes).

Plectranthias anthioides: Bleeker, 1875–76: 21
(Manado, Celebes); Boulenger, 1895: 332
(Celebes and Arafura Sea); Weber and
Beaufort, 1931: fig. 16 (Manado, Celebes);
Katayama, 1957: 147, fig. 1 (Izu-Ōshima,
Japan).

Anthias megalepis: Günther, 1880: 37, pl.

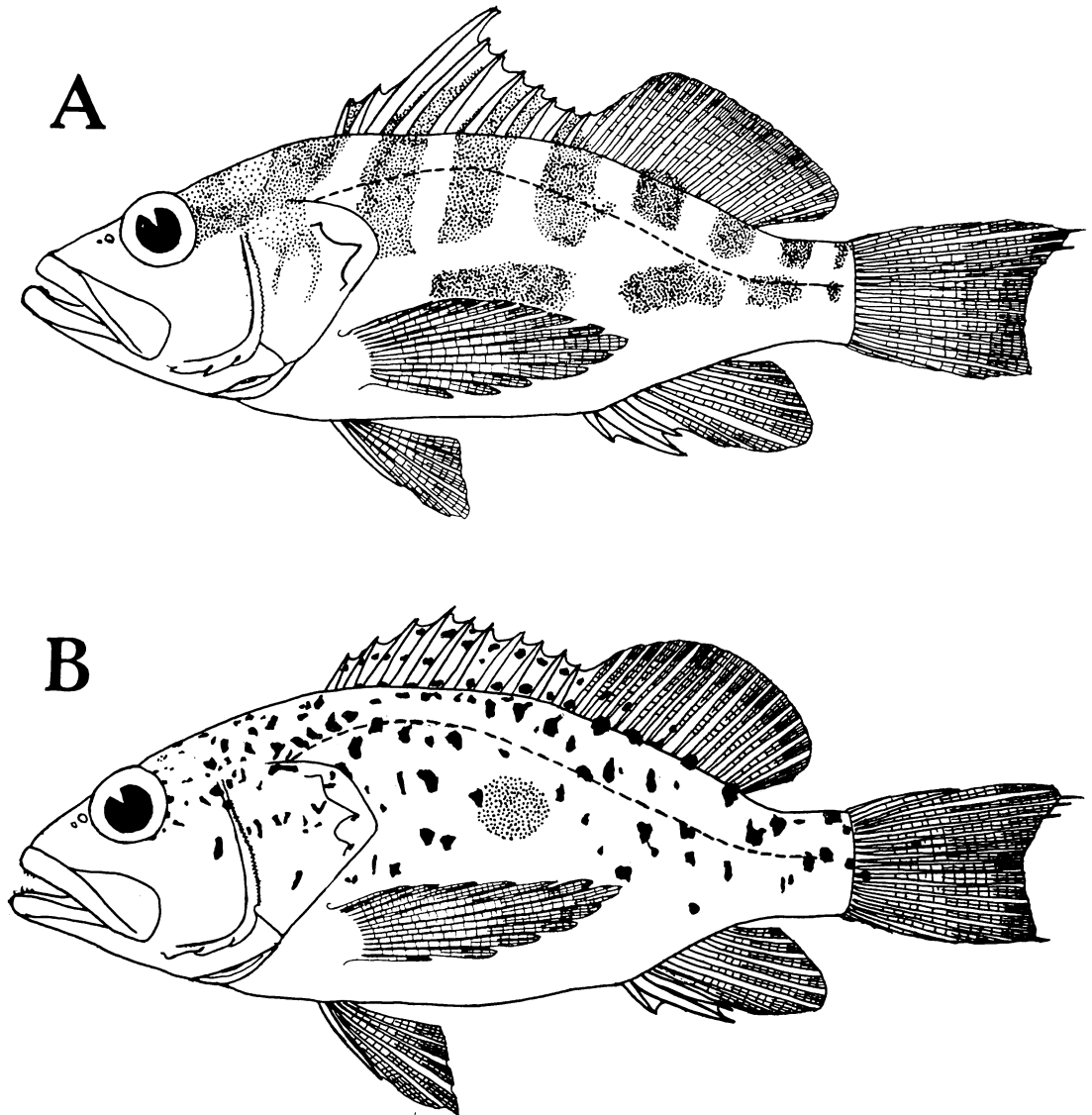


Fig. 1. Diagrams showing general body shapes and markings of Japanese species of the genus *Plectranthias*.
A. *Plectranthias anthioides* (Günther), FAKU 44564, 229.5 mm in standard length. B. *Plectranthias yamakawai* sp. nov., holotype, FAKU 44565, 173.2 mm in standard length.

16, fig. E (Ki Islands, Arafura Sea).

Selenanthias analis: Schmidt, 1931: 61, fig. 8 (Tokyo Market, Japan), (not of Tanaka).

Material examined. Male: FAKU (Department of Fisheries, Kyoto Univ.) 44561, 201.9 mm in standard length, Okinawa I., Ryūkyū Is., June 30, 1969. FAKU 44562 and 44564, 206.6 and 229.5 mm in standard

length, Mekura-Sone, off Yonaguni I., Ryūkyū Is., Dec. 9, 1970.

Female: FAKU 44560, 161.8 mm in standard length, Okinawa I., Ryūkyū Is., July 4, 1969.

Sex indeterminable: FAKU 44563, 213.4 mm in standard length, Mekura-Sone, off Yonaguni I., Ryūkyū Is., Dec. 9, 1970.



Fig. 2. *Plectranthias anthioides* (Günther), FAKU 44564, 229.5 mm in standard length.

Description

Counts and proportional measurements are shown in Table 1.

Body oblong, compressed: dorsal contour from tip of snout to origin of dorsal almost straight or interorbital part slightly concave; ventral margin evenly curved. Mouth large, oblique and protractile; lower jaw slightly projecting beyond the upper when closed. Maxillary expanded distally, extending below posterior border of pupil, with a rudimentary supplemental bone. Interorbital space narrow and convex, 1.48–2.75 in eye diameter. Nostrils two, close together, and situated just in front of eye; anterior nostril smaller, with an elevated rim and produced posterior flap; the posterior one a little larger, ovoid. Jaws with minute teeth; one or two pairs of conical teeth on upper jaw near symphysis; one to three strong backwardly directed conical teeth in each side of lower jaw anterior to its middle. Narrow band of villiform teeth on palatines;

similar teeth on vomer in Λ -shaped band. Tongue smooth. Preopercle with round angle; the posterior border finely serrated; the lower border with one to three antrorse spines. Opercle with three spines, middle one strongest. Subopercle and interopercle not serrated along their margins. Branchiostegals 7, last one broad. Gill rakers short and widely separated each other, longest one shorter than gill-filament. Dorsal originates above upper end of gill cleft. Dorsal spines strong; third one longest; the spines become shorter posteriorly. Anal spines strong, second one much stouter and longer than the third. Pectoral subsymmetrical and like a paddle; the rays mostly branched, reaching to origin of 2nd anal ray. Ventral inserted below the base of pectoral, not reaching to anus. Caudal slightly emarginated, upper rays slightly filamentous, branched rays 15. Scales large, ctenoid, $3\frac{1}{2}$ to $4\frac{1}{2}$ in a series from origin of dorsal to lateral line, 3 in a series from middle part of spinous dorsal to lateral line, and $15\frac{1}{2}$ to $17\frac{1}{2}$ from origin

Table 1. Counts and proportional measurements of *Plectranthias anthioides*.

Items	FAKU 44560	FAKU 44561	FAKU 44562	FAKU 44563	FAKU 44564
Catalogue Number					
Sex	♀	♂	♂	?	♂
Standard length in mm	161.8	201.9	206.6	213.4	229.5
Dorsal fin	X, 18	X, 18	X, 18	X, 17	X, 18
Anal fin	III, 7	III, 6	III, 7	III, 7	III, 7
Pectoral fin	13	13	13	13	13
Lateral line scales	37	37	36	35	37
Gill rakers on first arch	6+11=17	6+12=18	6+11=17	6+10=16	6+10=16
Vertebrae	—	10+16=26	—	—	—
In standard length:					
Head length	2.27	2.26	2.36	2.31	2.33
Depth of body	2.77	2.67	2.67	2.81	2.83
Pectoral fin length	2.95	2.82	2.73	2.94	2.94
In head length:					
Snout length	3.82	3.60	3.66	3.48	3.40
Maxillary length	2.09	2.06	2.08	2.13	2.18
Eye diameter	3.76	4.02	4.75	4.35	4.70
Interorbital width	10.35	9.30	7.60	7.50	6.85
Postorbital part of head	1.93	1.98	1.87	1.84	1.80
Depth of caudal peduncle	3.62	3.67	3.43	3.45	3.43
Length of caudal peduncle	2.24	2.28	2.09	2.19	2.12
Ventral fin length	2.04	2.04	1.79	1.87	2.06
Ventral spine length	3.23	3.37	3.10	3.16	3.43
3rd dorsal spine length	2.51	2.17	2.26	2.03	1.92
4th dorsal spine length	3.13	3.34	3.21	2.88	2.76
Last dorsal spine length	8.93	7.90	8.40	7.09	5.46
Length of longest soft dorsal ray	2.57	2.54	2.56	2.60	2.58
1st anal spine length	6.43	7.50	5.57	6.27	7.37
2nd anal spine length	2.98	3.43	3.03	3.18	3.39
3rd anal spine length	3.40	3.92	3.35	3.56	3.90

Distribution

of anal to lateral line: head closely scaled except snout, preorbital, lips, maxillary, mandible, and throat; soft dorsal and anal covered with small scales basally; proximal parts of caudal and pectoral scaled. Lateral line curved, following the dorsal profile of body.

Coloration. In life, body reddish above and whitish below. Several grayish orange patches on top of head and upper half of body along base of dorsal, and a row of similar patches on side of body. All fins reddish or reddish yellow and have no speckles. In formalin, body whitish with reminiscent grayish patches; all fins pale.

Uncertain part of Japan landed at Tokyo market and recorded by Schmidt, Izu-Ōshima and Ryūkyū Islands in Japan; Celebes and Arafura Sea.

Remarks

The present specimens agree with the original description given by Günther (1871), especially in such characteristics as color markings, number of pored scales in lateral line and a longest 3rd dorsal spine. However, specimens described by Günther (1880) from Arafura Sea differ from the present specimens in having short 3rd dorsal spine. It is temporarily concluded that they are young form of

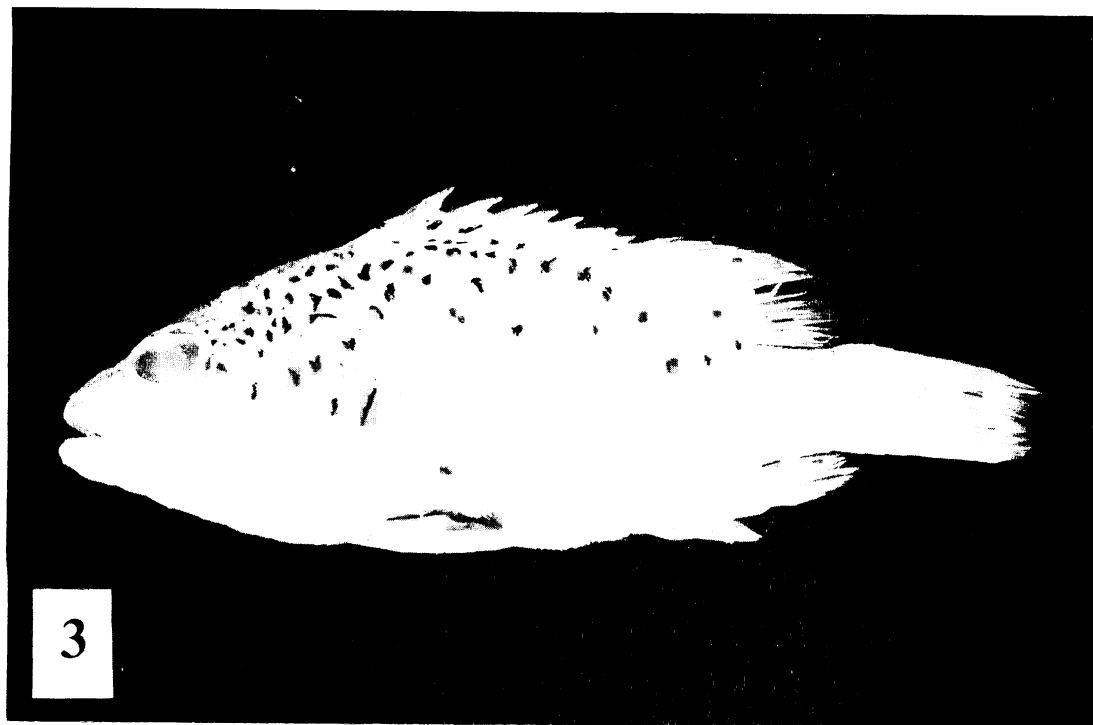


Fig. 3. *Plectranthias yamakawai* sp. nov., holotype, FAKU 44565, 173.2 mm in standard length.

Plectranthias anthioides in following points:
1) They have the same characteristic color pattern as the specimens examined by the present author. 2) They are all young specimens (3 to 4 inches, total length) and smaller than the present specimens.

On the other hand those specimens described by Günther (1880), Boulenger (1895), Schmidt (1931) and Katayama (1957) have fewer scales (pored scales in lateral line 28–34, instead of 35–37). Examination of the additional material is much needed. Presence of protogynous hermaphroditism is presumed. However, notable sexual dimorphism is not observed.

Plectranthias yamakawai sp. nov.
(New Japanese name: Amami-hanadai)
(Figs. 1B and 3)

Plectranthias anthioides (not of Günther):
Kamohara and Yamakawa, 1968: 8, fig. 4

(Naze, Amami-Ōshima).

Holotype. FAKU 44565, 173.2 mm in standard length, female, Okinawa I., Ryūkyū Is., July 4, 1969.

Paratypes. Male: FAKU 44566–44568, 160.5–181.3 mm in standard length, Okinawa I., Ryūkyū Is., June 28~July 4, 1969.

Yamakawa's specimen 6978 and 6980, 191.7 and 175.8 mm in standard length, Naze, Amami I., Ryūkyū Is., Aug., 1969.

Diagnosis

This species closely resembles *Plectranthias anthioides* in general appearance, but is separable from the latter in having many dark-greenish speckles and rather short 3rd dorsal spine (3.23–3.60 in head instead of 1.92–2.51) as shown in Fig. 1.

Description

Counts and proportional measurements are

Table 2. Counts and proportional measurements of *Plectranthias yamakawai*.

Items	Holotype		Paratypes			
Catalogue number	FAKU-44565	FAKU-44566	FAKU-44567	FAKU-44568	Yamakawa's no. 6980 6978	
Sex	♀	♂	♂	♂	♂	♂
Standard length in mm	173.2	160.5	178.4	181.3	175.8	191.7
Dorsal fin	X, 17	X, 17	X, 16	X, 16	X, 18	X, 17
Anal fin	III, 7	III, 7	III, 7	III, 7	III, 7	III, 7
Pectoral fin	13	13	13	13	13	13
Lateral line scales	33	32	32	33	33	31
Gill rakers on first arch	6+10=16	6+11=17	6+10=16	6+11=17	6+11=17	6+11=17
Vertebrae	10+16=26	—	—	—	—	—
In standard length:						
Head length	2.30	2.34	2.34	2.27	2.27	2.22
Depth of body	2.69	2.64	2.64	2.58	2.52	2.39
Pectoral fin length	2.83	2.68	2.85	2.74	2.77	2.65
In head length:						
Snout length	4.28	3.98	4.29	3.81	3.75	3.48
Maxillary length	2.25	2.04	2.12	2.06	2.20	2.13
Eye diameter	3.96	4.20	4.20	4.04	4.43	4.32
Interorbital width	7.24	7.37	7.42	8.25	9.02	7.78
Postorbital part of head	1.78	1.80	1.77	1.87	1.92	1.96
Depth of caudal peduncle	3.20	3.29	3.28	3.52	3.46	3.37
Length of caudal peduncle	2.30	2.25	2.12	2.33	2.25	2.16
Ventral fin length	2.12	1.79	1.81	1.81	1.98	1.97
Ventral spine length	3.59	3.25	3.41	3.10	3.54	3.47
3rd dorsal spine length	3.30	3.31	3.60	3.23	3.54	3.48
4th dorsal spine length	3.00	3.09	3.02	2.91	3.17	3.23
Last dorsal spine length	5.70	5.52	5.70	5.83	6.36	4.88
Length of longest soft dorsal ray	2.41	2.30	2.39	2.52	2.69	2.47
1st anal spine length	6.55	4.79	5.13	4.94	7.05	6.74
2nd anal spine length	3.15	2.88	2.88	3.04	3.17	3.15
3rd anal spine length	3.50	3.13	3.50	3.23	3.54	3.48

shown in Table 2.

Body oblong, compressed; dorsal contour from tip of snout to origin of dorsal slightly convex; ventral margin to insertion of ventral fin evenly curved. Mouth large, oblique and protractile; lower jaw slightly projecting beyond upper when mouth closed. Maxillary expanded distally, extending below posterior border of pupil, with a rudimentary supplemental bone. Interorbital space narrow and convex, 1.83 in eye diameter. Nostrils two, close together and situated directly in front of eye; anterior nostril smaller, with an elevated rim and produced posterior flap; the posterior one a little larger, ovoid in space. Jaws with minute teeth: a pair of conical teeth on upper

jaw near symphysis; one (right) and two (left) strong backwardly directed conical teeth in each side of lower jaw anterior to its middle. A narrow band of villiform teeth on palatines; similar teeth on vomer in A-shaped band. Tongue smooth. Preopercle with round angle; the posterior border rather weakly serrated; the lower border with two antrorse spines. Opercle with three spines, middle one strongest. Subopercle and interopercle not serrated along their margins. Branchiostegals 7, last one broad. Gill rakers short and widely separated each other, longest one shorter than gill-filament. Dorsal originates above upper end of gill cleft; dorsal spines strong; fourth one longest, becoming gradually shorter posteriorly.

Anal spines strong, second one much stouter and longer than the third. Pectoral sub-symmetrical and like a paddle, the rays mostly branched, reaching to origin of 2nd anal ray. Ventral inserted below the base of pectoral, not reaching to anus. Caudal weakly emarginated, upper rays slightly filamentous, branched rays 15. Scales large, ctenoid, $3\frac{1}{2}$ in a series from origin of dorsal to lateral line, 3 in a series from middle part of spinous dorsal to lateral line, and $13\frac{1}{2}$ from origin of anal to lateral line; head closely scaled except snout, preorbital, lips, maxillary, mandible, and throat; soft dorsal and anal covered with small scales basally; proximal parts of caudal and pectoral scaled. Lateral line curved, following the dorsal profile of body.

Coloration. In life, body reddish yellow above and whitish below. Many dark-greenish speckles scattered on upper half of body with fringed yellow and similar speckles scattered on spinous dorsal, base of soft dorsal and caudal fins. A large reddish blotch equal to the orbit lies below lateral line on both sides of body. Vertical fins reddish yellow; pectoral fins reddish; ventral fins whitish. In formalin, body pale; large reddish blotch on side of body becoming fainter; many dark speckles remain.

The above description is based upon the holotype.

Remarks

The differences between *Plectranthias yamakawai* and *P. anthioides* are given in the keys. So far as the specimens from Ryūkyū Islands are concerned, *P. yamakawai* is also separable from *P. anthioides* in having fewer scales (pored scales in lateral line 31–33, instead of 35–37, Tables 1 and 2). Further investigation on the variations of meristic characters is wanted. Notable sexual dimorphism is not observed.

Etymology

Species name is dedicated to Mr. Takeshi

Yamakawa who first collected and reported this species under the name *Plectranthias anthioides*.

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琉球列島から得られたハナダイ類の一新種および日本
産イズハナダイ属魚類の分類について 吉野 哲夫

Kamohara and Yamakawa (1968) がイズハナダイ
(*Plectranthias anthioides*) として奄美大島から報告した
個体と同一種類と思われる 4 個体が、沖縄本島で得られ
た。琉球列島各地から得られたイズハナダイとの比較・

検討の結果、この種類はイズハナダイと異なるので、新
種アマミハナダイ (*P. yamakawai*) として記載した。併
せて日本産イズハナダイ属の revision も試みた。

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