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Damselfishes of the Genus *Amblyglyphidodon* from Japan

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Abstract

The damselfish genus *Amblyglyphidodon* is represented in Japan by the following four species: *A. aureus* (Cuvier), *A. ternatensis* (Bleeker), *A. curacao* (Bloch) and *A. leucogaster* (Bleeker). Among these, *A. aureus* and *A. ternatensis* have not been reported from Japanese waters. A key, brief descriptions and illustrations are provided for these four species.

Damselfishes of the genus *Amblyglyphidodon* are commonly found at coral reefs in the tropical Indo-West Pacific region and easily distinguished from other damselfishes in having an orbicular body. This genus is composed of only six species, of which four are distributed in the tropical western Pacific (Allen, 1975). In Japan, there have been known only two species, *A. curacao* and *A. leucogaster*, from the Ryukyu Islands (Aoyagi, 1941; Matsubara, 1955; Masuda *et al.*, 1980).

During the course of studies on damselfishes from the Ryukyu Islands, we have collected two other species, *A. aureus* and *A. ternatensis*. A careful examination of these four species has revealed that some key characters used by Allen (1975) to distinguish *A. ternatensis* from the other three species are not valid for our specimens. In this report we describe and illustrate these four species from the Ryukyu Islands with some discussions on the taxonomic characters.

All the specimens studied here are preserved at Department of Marine Sciences, University of the Ryukyus (URM-P). The method of counts and measurements are based on Allen (1972 and 1975). All the data of measurements are expressed in thousandths of the standard length (SL) and those given in parentheses in the species descriptions are the means.

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Genus *Amblyglyphidodon* Bleeker, 1877

(Japanese name : Kurakao-suzumedai-zoku)

Amblyglyphidodon Bleeker, 1877; 92 (type species, *Glyphisodon aureus* Cuvier)

A genus belonging to the subfamily Pomacentrinae of the family Pomacentridae having the following characters: Body highly orbiculate and compressed, body depth 1.5 to 1.8 in

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standard length; posterior margin of preopercle and subopercle entire; scales large, tubed scales in lateral line 13 to 18, horizontal scale rows above middle of lateral line $1\frac{1}{2}$, below lateral line less than 12; dorsal fin with 13 spines and 11 to 14 rays, membrane between dorsal spines incised; anal fin with 2 spines and 11 to 15 rays; dorsal spines elongate, 5th to 7th longer than pelvic spine; teeth mostly uniserial with truncated tips.

Table 1. Frequency distribution of four meristic characters of *Amblyglyphidodon*.

Species	Dorsal fin rays				Anal fin rays				
	11	12	13	14	11	12	13	14	15
<i>A. aureus</i>		1	3					2	2
<i>A. ternatensis</i>	12				1	10	1		
<i>A. curacao</i>	1	8	5	1			7	8	
<i>A. leucogaster</i>		9	6				8	7	

Species	Pectoral fin rays				Tubed lateral line scales				
	16	17	18	13	14	15	16	17	18
<i>A. aureus</i>		4				1	2	1	
<i>A. ternatensis</i>	11	1			1	1	3	5	
<i>A. curacao</i>	8	7				1	7	5	1
<i>A. leucogaster</i>	7	7	1	1	3	5	5		

Significant taxonomic features

Allen (1975) used the following two characters in his key to distinguish *A. ternatensis* from the other three species: Tooth rows on jaws (biserial at front of jaws vs. uniserial); number of tubed scales in lateral line (13 to 14 vs. 16 to 17). So far as the specimens from the Ryukyu Islands are concerned, *A. ternatensis* has almost uniserial teeth at front of jaws and not fewer tubed scales than the other species (Table 1). Among the species of *Amblyglyphidodon*, we have found the following characters are of diagnostic importance: Squamation on lacrimal and infraorbital (suborbital of many authors); lacrimal indentation; position of the longest dorsal spine; and coloration.

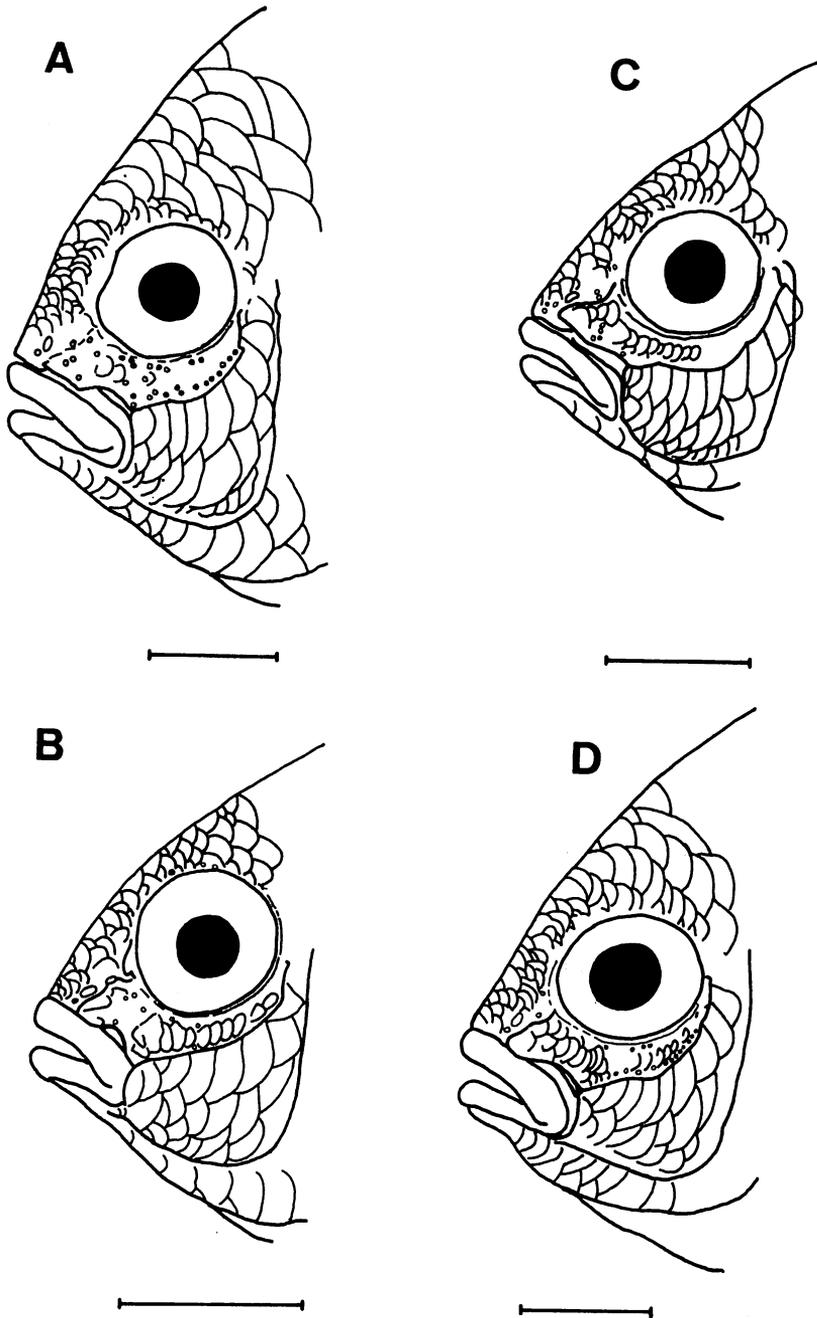


Fig. 1. Head of four species of *Amblyglyphidodon*, showing squamation and shape of lacrimal and infraorbital. A: *A. aureus*, URM-P 1072, 65.3 mm SL. B: *A. ternatensis*, URM-P 1044, 74.6 mm SL. C: *A. curacao*, URM-P 1036, 87.2 mm SL. D: *A. leucogaster*, URM-P 1019, 106.1 mm SL. (Each scale indicates 1 cm).

Squamation on lacrimal and infraorbital: *A. aureus* is the only species with almost naked lacrimal and infraorbital (Fig. 1A), whereas the other three species have many scales on lacrimal and infraorbital (Figs. 1B, C and D).

Lacrimal indentation: Presence or absence of a pronounced notch in lacrimal bordering the jaw. *A. ternatensis* is the only species with a distinct notch (Fig. 1B), whereas the other three species lack it.

Position of the longest dorsal spine: Dorsal spines of *A. aureus* become gradually longer posteriorly, the last spine being the longest. Median dorsal spine (mostly 5th or 6th) is the longest in the other three species.

Coloration: *A. curacao* is distinctive in having dark bars on body. *A. leucogaster* has a dark spot on upper part of pectoral base and dark spinous dorsal and anterior half of anal fin. Other two species have not conspicuous dark pigmentation.

Key to the species of *Amblyglyphidodon* from Japan

- 1 Lacrimal and infraorbital almost naked; dorsal spines increasing in length posteriorly, last dorsal spine longest ; body and fins pale (yellow when alive) *A. aureus*
 Lacrimal and infraorbital with many scales; median dorsal spine longest ; body and fins not uniformly pale (not yellow when alive) 2
- 2(1) Lacrimal with a pronounced notch; body without dark bars or marking
 *A. ternatensis*
 Lacrimal without a pronounced notch; body with either dark bars or marking 3
- 3(2) Body with five dark bars; upper pectoral base without black spot *A. curacao*
 Body without dark bars; upper pectoral base with a black spot *A. leucogaster*

Amblyglyphidodon aureus (Cuvier, 1830)

(Japanese name: Yamabuki-suzumedai)

(Fig. 1A; Pl. 1A)

Glyphisodon aureus Cuvier in Cuvier et Valenciennes, 1830: 479 (type locality, Java, Indonesia).

Material examined. URM-P 1072-1073, 2 specimens, 65.3-96.5mm SL, Cebu, Philippines, May 21, 1981. URM-P 1074 and 1075, 2 specimens, 109.4-118.9mm SL, Onna-son, Okinawa Island, Oct. 7 and Nov. 22, 1981.

Description. Dorsal fin XIII, 12 to 13; anal fin II, 14 to 15; pectoral fin 17; tubed lateral line scales 15 to 17; gill-rakers on first arch 5 to 7 + 18 = 23 to 25. Body depth 576-626 (600); head length 273-282 (279); snout length 70-83 (76); eye diameter 81-109 (94); interorbital width 103-122 (114); least depth of caudal peduncle 136-170 (153); length of pectoral fin 309-348 (327);

length of pelvic fin 320 - 404 (372); length of pelvic fin spine 190 - 217 (203); length of 1st dorsal spine 75 - 101 (90); length of median longest dorsal spine (5th) 224 - 252 (234); length of last dorsal spine 238 - 259 (252); length of longest dorsal ray (mostly 3rd or 4th) 368 - 464 (412); length of 2nd anal spine 245 - 264 (258); length of longest anal ray (3rd or 4th) 336 - 374 (356); distance from snout to origin of dorsal fin 417 - 458 (429); distance from snout to origin of anal fin 390 - 444 (415).

Dorsal profile from snout to dorsal fin origin steep, slightly curved. Interorbital space slightly larger than eye diameter. Mouth small oblique, terminally located; maxillary reaching below anterior margin of pupil. Ventral margin of lacrimal smoothly concave. Lacrimal and infraorbital with two to five scales. Predorsal scales reaching beyond nostril. Dorsal spines gradually increasing in length posteriorly; last dorsal spine longest, subequal to or slightly less than 2nd anal spine length. Length of 1st anal spine subequal to eye diameter. Soft dorsal and anal fins produced into a point. Caudal fin forked, with the lobes pointed. Pelvic fin long; 1st ray produced into a filament, reaching to base of anterior anal rays.

Coloration when alive: Body golden yellow, with blue spots on scales of head and body.

Distribution. Widely distributed in tropical western Pacific north to the Ryukyu Islands, south to the Great Barrier Reef. Not reported from Taiwan (Shen and Chan, 1979).

Remarks. Our specimens agree well with the descriptions and figures given by many authors such as Allen (1975), Bleeker (1878), Beaufort (1940), Fowler and Bean (1928) and Montalban (1927). Masuda (1980) gave the Japanese name to this species and showed a color photograph taken at Palau. The present report is the first record this species from the Japanese waters and seems to be the northernmost record.

Amblyglyphidodon ternatensis (Bleeker, 1853)

(New Japanese name: Nise-kurakao-suzumedai)

(Fig. 1B; Pl. 1B)

Glyphisodon ternatensis Bleeker, 1853: 137 (type locality, Ternate, Moluccas).

Material examined. URM-P 1040-1047, 8 specimens, 52.3-74.6mm SL, Kuroshima, Yaeyama Islands, July 27, 1976. URM-P 1048-1051, 4 specimens, 43.2-66.6 mm SL, Kabira, Ishigaki Island, July 23, 1976. URM-P 3264, 1 specimen, 57.1 mm SL, Amitori, Iriomote Island, June 6, 1982.

Description. Dorsal fin XIII, 11; anal fin II, 11 to 13 (mostly 12); pectoral fin 16 to 17 (mostly 16); tubed lateral line scales 14 to 17 (mostly 16 to 17); gill-rakers on first arch 6 to 7 + 15 to 19 = 23 to 26. Body depth 513-565 (536); head length 205-310 (284); snout length 75-92 (85); eye diameter 102-123 (110); interorbital width 120-134 (127); least depth of caudal

peduncle 125 - 155 (140); length of pectoral fin 292 - 331 (308); length of pelvic fin 298 - 440 (365); length of pelvic fin spine 180 - 241 (201); length of 1st dorsal spine 86 - 102 (95); length of longest dorsal spine (mostly 5th or 6th) 193 - 255 (213); length of last dorsal spine 153 - 203 (177); length of longest dorsal ray (3rd) 279 - 337 (309); length of 2nd anal spine 180 - 253 (219); length of longest anal ray (mostly 5th) 244 - 347 (282); distance from snout to origin of dorsal fin 381 - 414 (399); distance from snout to origin of anal fin 425 - 508 (449).

Dorsal profile from snout to dorsal fin origin almost straight, and slightly convex at interorbital space. Interorbital space slightly larger than eye diameter. Mouth small, oblique, terminally located; maxillary reaching below a little beyond anterior margin eye. Ventral margin of lacrimal with a pronounced notch. Lacrimal and infraorbital with many scales. Predorsal scales reaching to upper lip. Median dorsal spines high; 5th or 6th dorsal spine longest, subequal to 2nd anal spine length. Length of 1st anal spine subequal to eye diameter. Soft dorsal and anal fins angular. Caudal fin forked, with the lobes pointed. Pelvic fin long; 1st ray produced into a filament, reaching to base of anterior anal rays.

Coloration when alive: Body pale greenish, paler below, without dark bars and marks. After death, body often with obscure, dusky markings.

Distribution. Hitherto known from Palau, East Indies, New Guinea and Solomon Islands (Allen, 1975).

Remarks. As we have described, our specimens agree with the figure and description given by Allen (1975) except for number of tubed lateral line scales and tooth rows at front of jaws. Although it is not certain whether the differences are due to geographical variation or not, we consider that it should be assigned to the variation within a species. Specimens of this species from Palau Islands agree well with those from the Ryukyu Islands.

So far as the specimens from the Ryukyu Islands are concerned, fewer counts of dorsal and anal fin rays are also diagnostic characters of this species (Table 1). This is the first record of this species from the Japanese waters. In Yaeyama Islands, southern part of the Ryukyu Islands, this species is commonly found at shallow reefs where staghorn coral is abundant. However, we have not found it in Okinawa and other northern islands of the Ryukyu Arch. The specimen figured in Plate 99L of Masuda *et al.* (1975) is not *A. curacao* but this species. This error is corrected in their 2nd edition (Masuda *et al.*, 1980).

***Amblyglyphidodon curacao* (Bloch, 1787)**

(Japanese name: Kurakao-suzumedai)

(Fig. 1C; Pl. 1C)

Chaetodon curacao Bloch, 1787: 105 (type locality, Curacao Island—error)

Material examined. URM-P 1012–1017, 6 specimens, 64.8–69.8 mm SL, Okinawa Island, Sept. 2, 1974. URM-P 1020, 1 specimen, 89.5 mm SL, Sesoko Island, May 25, 1980. URM-P

1034-1035, 2 specimens, 68.9-77.9mm SL, Okinawa Island, Apr. 25, 1976. URM-P 1036-1038, 3 specimens, 45.6-87.2mm SL, Kuroshima, Yaeyama Islands, July 27, 1976. URM-P 1039, 1 specimen, 67.3mm SL, Okinawa Island, June 19, 1976. URM-P 4617 and 5808, 2 specimens, 35.7-67.0mm SL, Amitori, Iriomote Island, Sept. 8, 1982.

Description. Dorsal fin XIII, 11 to 14 (mostly 12 to 13); anal fin II, 13 to 14; pectoral fin 16 to 17; tubed lateral line scales 15 to 18 (mostly 16 to 17); gill-rakers on first arch 5 to 8 + 18 to 22 = 25 to 30. Body depth 537 - 578 (553); head length 281 - 320 (292); snout length 63 - 89 (78); eye diameter 98 - 118 (108); interorbital width 107 - 127 (117); least depth of caudal peduncle 139 - 160 (150); length of pectoral fin 311 - 360 (328); length of pelvic fin 381 - 434 (403); length of pelvic fin spine 181 - 201 (189); length of 1st dorsal spine 67-98 (79); length of longest dorsal spine (5th or 6th) 192 - 238 (215); length of last dorsal spine 160 - 194 (179); length of longest dorsal ray (3rd) 259 - 380 (318); length of 2nd anal spine 196 - 244 (228); length of longest anal ray (5th) 201 - 300 (270); distance from snout to origin of dorsal fin 406 - 442 (429); distance from snout to origin of anal fin 386 - 440 (409).

Dorsal profile from snout to interorbital space almost straight, and slightly convex near nape. Interorbital space slightly larger than eye diameter. Mouth small, oblique, terminally located; maxillary reaching below a little beyond anterior margin of eye. Ventral margin of lacrimal smoothly concave. Lacrimal and infraorbital with many scales. Predorsal scales reaching to upper lip. Median dorsal spines high; 5th or 6th dorsal spine longest, subequal to 2nd anal spine length. Length of 1st anal spine subequal to eye diameter. Soft dorsal fin angular, anal fin rounded. Caudal fin forked, with the lobes pointed. Pelvic fin long; 1st ray produced into a filament, reaching to base of anterior anal rays.

Coloration when alive: Body greenish olive above, paler below with five darker bars composed of bluish blotches on scales.

Distribution. Widely distributed in tropical western Pacific, north to the Ryukyu Islands.

Amblyglyphidodon leucogaster (Bleeker, 1847)

(Japanese name: Nami-suzumedai)

(Fig. 1D; Pl. 1D)

Glyphisodon leucogaster Bleeker, 1847: 26 (type locality, Java)

Material examined. URM-P 1018, 1 specimen, 92.0 mm SL, Kerama Islands, July 6, 1977. URM-P 1019, 1 specimen, 106.1 mm SL, Sesoko Island, Sept. 12-13, 1976. URM-P 1021-1033, 13 specimens, 80.4-110.3 mm SL, Sesoko Island, July 1972-Mar.1975.

Description. Dorsal fin XIII, 12 to 13; anal fin II, 13 to 14; pectoral fin 16 to 18 (mostly 16 to 17); tubed lateral line scales 13 to 16 (mostly 15 to 16); gill-rakers on first arch 6 to 8 + 16 to 20 = 23 to 28. Body depth 509-592 (557); head length 263-283 (273); snout length 65-82 (75);

eye diameter 86–104(95); interorbital width 112–129(120); least depth of caudal peduncle 143–161 (151); length of pectoral fin 313–368(341); length of pelvic fin 317–448(370); length of pelvic fin spine 168–191(180); length of 1st dorsal spine 67–105(80); length of longest dorsal spine (mostly 5th) 192–239 (212); length of last dorsal spine 180–212(199); length of longest dorsal ray (mostly 4th) 267 – 386(331); length of 2nd anal spine 220 – 259(239); length of longest anal ray (4th); 279 – 327(300); distance from snout to origin of dorsal fin 382 – 421(403); distance from snout to origin of anal fin 381 – 449(400).

Dorsal profile from snout to dorsal fin origin smoothly convex. Interorbital space slightly larger than eye diameter. Mouth small, oblique, terminally located; maxillary reaching below a little beyond anterior margin of eye. Ventral margin of lacrimal smoothly concave. Lacrimal and infraorbital with many scales. Predorsal scales reaching almost to upper lip. Median dorsal spines high; 5th dorsal spine longest, subequal to 2nd anal spine length. Length of 1st anal spine subequal to eye diameter. Soft dorsal and anal fins angular. Caudal fin forked, with the lobes pointed. Pelvic fin long; 1st ray produced into a filament, reaching to base of anterior anal rays.

Coloration when alive: Body pale brown; lower flank of body yellow. Spinous dorsal, anterior parts of soft dorsal and anal fins dark brown. Caudal fin with upper and lower dark brownish margins. Upper part of pectoral base with a dark spot. Pelvic fin brownish yellow.

Distribution. Widely distributed in the tropical Indo-West Pacific, north to the Red Sea in the Indian Ocean and the Ryukyu Islands in the Pacific.

Remarks. *A. leucogaster* and *A. curacao* are ubiquitous species in the Ryukyu Islands. The former is usually found at deeper places than the latter.

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Plate 1.

- A. *Amblyglyphidodon aureus*, URM-P 1074, 109.4 mm SL, Okinawa Island.
- B. *Amblyglyphidodon ternatensis*, URM-P 3264, 57.1 mm SL, Iriomote Island.
- C. *Amblyglyphidodon curacao*, URM-P 4617, 67.0 mm SL, Iriomote Island.
- D. *Amblyglyphidodon leucogaster*, URM-P 1019, 106.1 mm SL, Sesoko Island.

Plate 1.

