

Chromis okamura, a New Damsel fish from the Okinawa Trough, Japan

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Abstract A new pomacentrid fish, *Chromis okamura*, is described from a single specimen taken from the Okinawa Trough (25°53.4'N, 123°59.4'E), in 135–175 m. This species is most closely related to the deep-dwelling *C. mirationis*, sharing with it the same meristic data (in particular XIV dorsal spines and 2 upper and lower caudal spinules), large eye, and relatively deep body. It differs in having a small round posterior nostril (large and slit like in *mirationis*), longer second anal spine, shorter pelvic fins, and in color: two dark brown stripes on body and a pale pectoral-fin axil (*mirationis* has a single, midlateral, yellow to yellowish brown stripe which extends broadly onto lower part of caudal fin, and a black pectoral axil).

The Japanese Fisheries Agency promoted exploratory fishing on the continental slopes of Japan during the period 1978–1980. While trawling in 135–175 m in the Okinawa Trough between northern Taiwan and Okinawa, the “Yuryo-Maru No. 8” caught a single specimen of a pomacentrid fish of the genus *Chromis* distinctly marked with two dark brown stripes. Yamakawa (1985: 525, fig. 303) reported the specimen as *Chromis* sp. and illustrated it in color. Subsequent study of this specimen has revealed it to be an undescribed species closely related to the deep-water damselfish *C. mirationis* Tanaka, 1917 of southern Japan (see review of Japanese *Chromis* by Randall et al., 1981). The purpose of the present paper is to describe this new *Chromis*.

Methods of counting and measuring specimens follow those of Randall et al. (1981). Counts of vertebrae and predorsal bones were made from a radiograph. The holotype is deposited in the fish collection of the Department of Biology, Faculty of Science, Kochi University (BSKU).

Chromis okamura sp. nov.

(New Japanese name: Obi-tokai-suzumedai)

(Figs. 1–3)

Chromis sp.: Yamakawa, 1985: 525, fig. 303.

Holotype. BSKU 29624, 94.4 mm SL, Okinawa Trough, 25°53.4'N, 123°59.4'E, 135–175 m trawled by the “Yuryo-Maru No. 8”, 16 September 1979.

Diagnosis. Dorsal rays XIV, 13; anal rays II, 12; pectoral rays 18–19; upper and lower caudal

spinules 2; body depth 49.4% SL; orbit diameter 13.6% SL; length of second anal spine greater than 23.5% SL; two broad dark brown stripes on body.

Description. Dorsal fin rays XIV, 13 (first ray unbranched, the last branched to base); anal rays II, 12 (all rays branched, the last to base); pectoral rays 18–19 (upper two and lowermost unbranched); pelvic rays I, 5; total caudal rays 12+11, the first two of upper and lower lobes as short spinules; tubed lateral-line scales 17; pored lateral-line scales on caudal peduncle 7; scales above lateral line to origin of dorsal fin 4; scales below lateral line to origin of anal fin 9; circumpeduncular scales 14; gill rakers 8+19; vertebrae 11+15; predorsal bones 3.

Body moderately deep, the depth 2.0 in SL, and compressed, the width 2.6 in depth; head length 2.8 in SL; snout short, 4 in head; eye large, the orbit diameter 2.65 in head; interorbital space slightly convex, the least width 3.25 in head; depth of caudal peduncle 2.45 in head.

Mouth terminal and strongly oblique, the gape forming an angle of 50° to the horizontal; maxilla extending to just below anterior margin of orbit; 18–19 conical teeth in outer row on each side of upper jaw, the two front pairs largest; front of upper jaw with three rows of teeth, those of inner two rows small; 20 conical teeth in outer row on each side of lower jaw, the four pairs at front largest; two irregular rows of small teeth behind outer row at front of lower jaw; teeth in both jaws narrowing to a single row posteriorly. Tongue

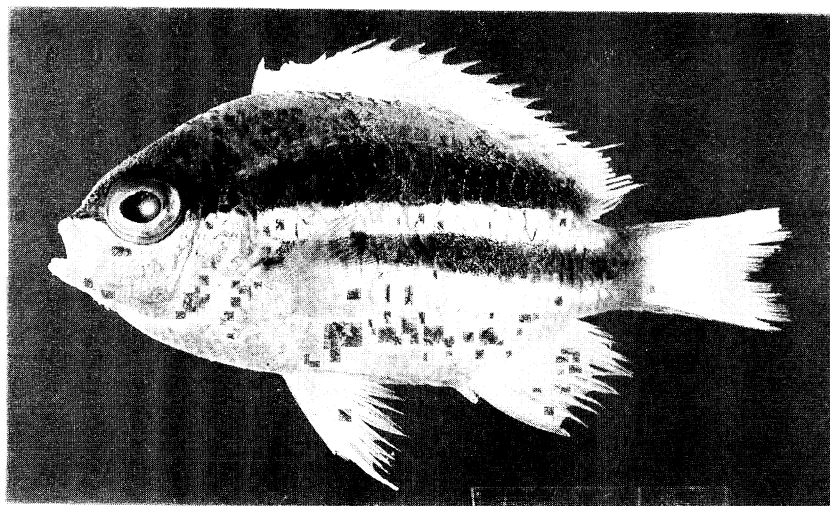


Fig. 1. Holotype of *Chromis okamura*, BSKU 29624, 94.4 mm SL, Okinawa Trough (missing scales retouched).

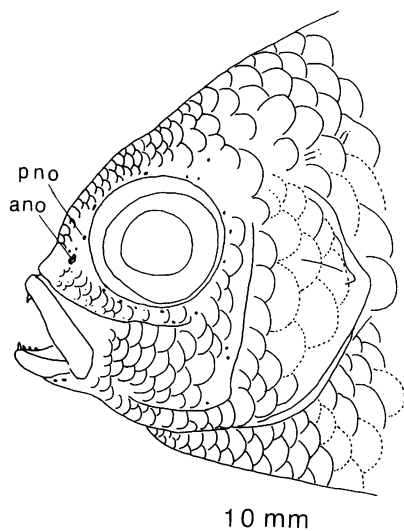


Fig. 2. Head of holotype *Chromis okamura*. ano, anterior nasal opening; pno, posterior nasal opening.

broadly triangular with rounded tip. Longest gill raker (on lower limb near angle) 3.3 in orbit diameter.

Suborbital scaled, its free margin extending slightly posterior to rear edge of pupil. Preopercular margin above angle slightly irregular but not serrate. Opercular spine flat and acute, its tip slightly above level of lower edge of orbit.

Anterior nostril small, oval, in front of center of eye closer to eye than front of snout, with a

slight rim and short triangular posterior flap; posterior nostril very small, round, diagonally dorsoposterior to anterior nostril and close to edge of orbit (see Fig. 2). Pores of lateralis system on head small.

Scales ctenoid; no auxiliary scales; head fully scaled except front of snout (scales dorsally on head extend anterior to nostrils to within 3 mm of base of upper lip) and side of snout just anterior to orbit; scales of median fins extending more than half distance to margins (column of scales on each interspinous membrane of dorsal fin extending three-fourths distance to margin); small scales only basally on pectoral fins; midventral scaly process of pelvic fins 1.65 in pelvic spine; axillary scale of pelvic fin 1.8 in pelvic spine.

Origin of dorsal fin above third lateral-line scale; sixth and seventh dorsal spines longest, 1.7 in head; interspinous membranes of dorsal fin moderately incised anteriorly, weakly so posteriorly; first two dorsal spines and all dorsal soft rays broken; origin of anal fin below base of ninth dorsal spine; tips of anal spines broken; second anal spine about 1.5 in head; fourth anal soft ray longest, 1.4 in head; caudal fin forked, the principal rays all broken; pectoral fins pointed, the third and fourth rays longest, 3.0 in SL; pelvic fins inserted beneath lower base of pectoral fins, the first ray longest, reaching anus, its length 1.25 in head.

Color of holotype when fresh: a broad dark brown stripe extending from behind upper half

of eye to base of soft portion of dorsal fin; back above stripe and dorsal part of head brown; head and body below stripe bluish white, the scale edges light brown except for a second dark brown stripe extending from behind opercular flap just above pectoral-fin base to midbase of caudal fin; low part of body with three faint brownish yellow stripes; fins pale yellowish, the caudal with a dark brown bar at base which merges with lower dark brown stripe of body and extends a short distance along upper and lower margins of fin; a small dark brown spot at upper edge of pectoral-fin base; pectoral-fin axil pale.

Color in alcohol similar to fresh coloration, the ventral bluish white part of body now pale yellowish brown.

Distribution. Known at the present time only from a single location in the Okinawa Trough west of Okinawa and north of Sakishima Gunto from a depth of 135–175 m (Fig. 3).

Etymology. We name this species as *Chromis okamura* in honor of Dr. Osamu Okamura, Professor of Zoology of Kochi University.

Remarks. In having XIV dorsal spines, *Chromis okamura* may be separated from all Japanese species of the genus except *C. albomaculata* Kamehara, *C. fumea* (Tanaka), and *C. mirationis* Tanaka (see Randall et al., 1981: table 4). *C. fumea*, however, usually has XIII instead of XIV dorsal spines and is further separated by its lower counts

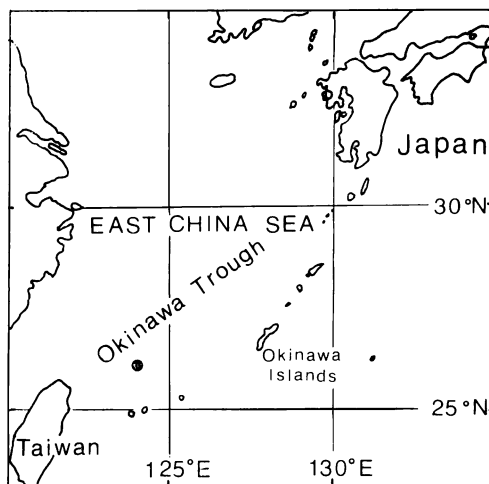


Fig. 3. Map of the Okinawa Trough showing the site (solid circle) where *Chromis okamura* was captured.

of dorsal and anal soft rays. The large, somber *C. albomaculata* is readily distinguished by having three upper and lower caudal spinules. *C. okamura* seems most closely related to *C. mirationis*, sharing with it the same meristic data (counts of more *okamura* might show modal differences) and similar morphology—in particularly the relatively deep body and large eye (see Table 1 for comparison of morphometric measurements of *okamura* and *mirationis*). It differs from

Table 1. Comparison of proportional measurements of *Chromis okamura* and *C. mirationis* (10 specimens) expressed as a percentage of the standard length.

	<i>C. okamura</i>	<i>C. mirationis</i>	
		mean	range
Head length	35.8	33.9	32.8–35.4
Body depth	49.4	48.9	46.8–51.6
Snout length	9.0	8.7	7.7–9.3
Orbit diameter	13.6	12.5	11.4–13.8
Postorbital length of head	14.8	14.2	13.0–15.5
Interorbital width	11.3	11.3	10.6–12.0
Upper jaw length	11.4	10.9	10.0–11.5
Caudal peduncle depth	14.6	14.1	13.3–14.6
Caudal peduncle length	14.5	14.4	13.5–15.5
Predorsal distance	41.5	38.8	36.8–41.7
Preanal distance	75.2	74.5	69.9–78.2
Prepelvic distance	45.7	45.7	42.1–48.9
Longest dorsal spine	21.2	19.2	18.1–21.0
Longest anal spine	23.5+	21.3	19.6–22.5
Pectoral fin length	35.2	32.9	31.1–35.0
Pelvic fin length	27.5	31.7	29.6–35.0

mirationis in having a small round posterior nostril (large and slit like in *mirationis*), longer second anal spine (23.5+ % SL, compared to 19.6–22.5% for *mirationis*), shorter pelvic fin (27.5% SL, compared to 29.6–35.0% for *mirationis*) and in color: *C. mirationis* has a single, midlateral, yellow to yellowish brown stripe which extends broadly onto the lower caudal-fin lobe, in contrast to two dark brown stripes for *okamurai*. In addition, it has a black instead of pale pectoral-fin axil.

Another close relative is the endemic Hawaiian *Chromis struhsakeri* Randall and Swerdloff, also a deep-dwelling species with XIV, 13 dorsal rays, two upper and lower caudal spinules, deep body, and large eye. It differs from *C. okamurai* in having 22–26 instead of 19 lower-limb gill rakers and in color. It lacks stripes on the body, having instead a broad blackish bar posteriorly (obscure in large adults) containing a pale yellowish spot at rear base of dorsal fin and adjacent caudal peduncle.

Comparative material. Ten BSKU and NSMT (National Science Museum, Tokyo) specimens of *Chromis mirationis*, 88.7–117.6 mm SL: BSKU 1537, 88.7 mm SL, Mimase fish market, Kochi City, 13 Jan. 1952; BSKU 27483, 99.0 mm SL, Okinawa Trough (27°43'N, 126°26'E), 9 Mar. 1978; BSKU 29607, 119.0 mm SL, Okinawa Trough (25°42'N, 124°2.9'E) 330–340 m, 21 Sep. 1979; BSKU 29623, 106.8 mm SL, Okinawa Trough (25°53.4'N, 123°59.4'E), 135–175 m, 16 Sep. 1979; BSKU 32454–32457, 4: 104.6–117.6 mm SL, Okinawa Trough (25°50'N, 124°25'E), 350–400 m, 4 Sep. 1979; NSMT-P 30362, 103.6 mm SL, Mimase fish market, Kochi City, 13 Oct. 1965; NSMT-P 30363, 104.5 mm SL, Kochi central fish market, 17 Oct. 1966.

Acknowledgments

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沖縄舟状海盆から得られたスズメダイ属の1新種オビトウカイスズメダイ

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沖縄舟状海盆から得られた個体にもとづき, *Chromis okamurai* sp. nov. を記載した. 本種は付属鱗がないこと, 前鰓蓋骨縁辺が円滑なこと, 尾鰭上下の棘状軟条が2本であること, 背鰭は14棘であること, 眼が大きいことなどの形質からトウカイスズメ *C. mirationis* に似るが, 後鼻孔が小さく円いこと, 第2臀鰭棘が長いこと, 体色が黄色く, 2条の暗褐色縦帯があること, 胸鰭腋部が淡色なことなどにより区別される.

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