

Acta Zoologica Taiwanica 8(2): 87-92 (1997)

***Fusigobius aureus*, a New Species of Gobiid Fish (Perciformes, Gobiidae) from Flores Island, Indonesia**

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Abstract

Fusigobius aureus, a new species of gobiid fish collected from the coral reef of Maumere, Flores Island, Indonesia can be distinguished by the combination of pectoral fin count, largely separated pelvic fins and coloration. The diagnosis, description, distribution, comparison with other congeneric species and color photo of this species are provided in this paper.

Keywords: Goby, *Fusigobius aureus*, Fish taxonomy, Fish fauna, Coral reef fish

INTRODUCTION

The number of species in the Gobiidae (Teleostei: Gobioidei) exceeds that in other families of gobioid fishes and some species, especially those inhabiting coral reefs, are yet to be discovered and identified. So far, only 5 valid species of the coral-reef gobiid genus *Fusigobius* Whitely, 1930 have been described, namely *F. neophytus* Gunther, 1877; *F. longispinus* Goren, 1978; *F. duospilus* Hoese and Reader, 1984; *F. signipinnis* Hoese and Obika, 1988; and the recently described species, *F. inframaculatus* (Randall, 1994), although about fifteen species are thought to exist (Hoese and Reader, 1984). Although that the closely related genus *Coryphopterus* from the Americas has recently reported as a senior synonym of *Fusigobius* (Randall, 1995), some gobiologists retain both as valid genera (Miller, unpublished data; Iwata, pers. comm.). Here we retain the Indo-Pacific genus name, *Fusigobius*, until further revisions are available, and

describe one additional species, *F. aureus*, from a tropical coral reef at Flores Island, Indonesia. This new species is significantly different from other nominal species in some characters and in its specific coloration.

MATERIAL AND METHODS

Specimens of *F. aureus* were found and collected using a hand-net while SCUBA diving. All counts and measurements were made from specimens preserved in 10% formalin. Descriptions of the color patterns were based on fresh specimens. The terminology for the pores of the cephalic sensory canals and free neuromast organ (sensory papillae) is from Miller (1988). Meristic characters were assessed following the methods of Masuda *et al.* (1984). Morphometric characters were measured based on Hubbs and Lagler (1958). An asterisk indicates the count of the holotype. Type specimens are deposited at the Museum of the Institute of Zoology, Academia Sinica (ASIZP) and the National Museum of Marine

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Biology/Aquarium (NMMBP) in Taiwan. Meristic abbreviation include D1, D2 (first and second dorsal fins); A (anal); P (pectoral); V (pelvic fins); LR (longitudinal scale rows) and TR (transverse scale rows).

Fusigobius aureus sp. nov.

Fig. 1-3

Holotype: ASIZP-057803, 34.8mm SL, 12-15m, male, Maumere, Flores Island, Indonesia, Nov. 27, 1993.

Paratype: NMMBP-00301, 31.8mm SL, locality and data as same as above.

Diagnosis:

D1 VI; D2 I/9; P 18-19, LR 23-24; predorsal naked. Body with a row of golden-yellow spots along mid line of lateral surfaces and with some rows of smaller golden-yellow spots on both dorsal and ventral surfaces. An oblique, yellow line on cheek and snout. Caudal base with a diaper shaped black blotch. Dorsals and caudal with some rows of smaller golden-yellow spots. First dorsal with a large black blotch, with its lower half tinged orange. Pelvic fins largely separated except for a limited linkage by a very narrow connecting membrane.

Description

D¹ VI*; D² I/9*; A I/8*; P 18*-19; V I/5; LR 23-24*; TR 7*; predorsal naked. Head length 29.8%; body depth 20.9*-21.6%; predorsal length 35.2*-35.9%; preanal length 55.9*-57.5%; caudal peduncle depth 12.4*-13.4%; caudal peduncle length 29.2*-29.4%; soft dorsal spine length 17.0-17.3%*; first dorsal ray length 18.7*-19.6% and the sixth anal ray length 18.5-21.2%* all in standard body length. Snout length 31.6-32.6%; eye diameter 29.7%* and bony interorbital width 2.6*-3.4% all in head length.

Body slender and elongate, compressed posteriorly. Cross-section of anterior part of head triangular. Snout short, pointed, dorsal profile smooth. Maxillary reaching the vertical of anterior margin of orbit. Lower lip just slightly more prominent than upper. Teeth conical,

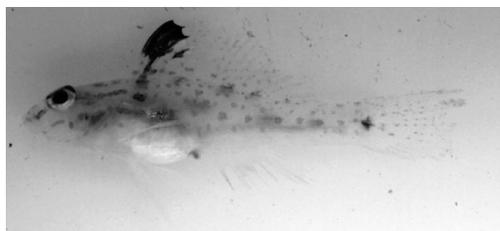


Figure 1. *Fusigobius aureus*, ASIZP057803, 34.8mmSL

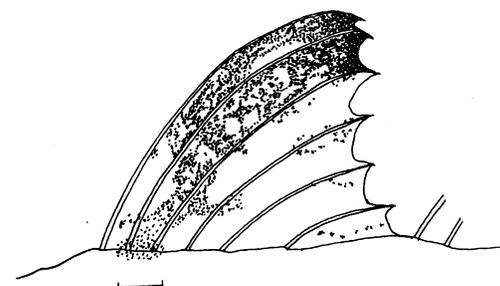


Figure 2. Pigmentation on first dorsal fin in preserved specimens of *Fusigobius aureus*, from paratype. (bar 1 mm)

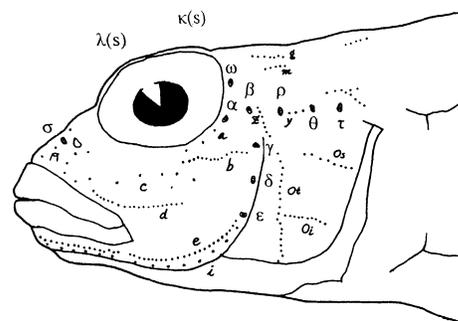
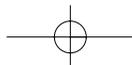


Figure 3. Cephalic sensory system of *Fusigobius aureus*, from paratype.

outer rows of both jaws enlarged. Eyes very high, large; dorsal part of eyes above dorsal profile of head. Interorbital very narrow, sharply concave. Anterior nostril forming a short tube near upper jaw. Posterior nostril a pore located closer to anterior nostril than to eye.

Cephalic sensory systems: Head pores with a posterior nasal pore near each posterior nostril (σ); a single median interorbital pore (λ) and posterior pore (κ); a posterior pore behind each eye (ω); an infraorbital pore (α) below the posterior pore; a lateral canal pore above



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preoperculum (β); a terminal lateral canal pore above operculum (ρ); pores (θ and π) at two end of posterior oculoscapular canal; three pores (γ , δ and ϵ) on preopercular canal. Sensory papillae: cheek with four longitudinal rows, *a*, *b*, *c* and *d*, but *cp* not evident from types. More papillae in *b* and *d*. Operculum with *Ot* connected to *Oi*, but separated to *Os*. Postorbital region with somewhat vertical *z* and horizontal *y*; longitudinal *x* not evident from the types (perhaps decomposed) although *x* always seen in other species. Nape with longitudinal *g* and *m*. Other papillae shown in Fig. 2.

Opeculum, cheek, snout and nape naked. Body covered with large ctenoid scales. Scales of breast cycloid. Dorsals separated by very short inter-space. First dorsal origin inserted near the vertical of pectoral fin base. First two spines in first dorsal longer, extending beyond the origin of soft dorsal when depressed. First dorsal ray highest and last one shortest among rays of second dorsal. Anal origin from the insertion of the first dorsal ray of the second dorsal. Pectoral large and rounded, about equal to head length. Pelvic fins largely separated but united at base, the connecting membrane very short and concave in outer margin, without inter-spinal frenum. Length of last pelvic fin ray longer than two third of length of fourth ray. Caudal somewhat rounded, truncate in posterior end.

Color

The description of the coloration of live specimens is based on notes and slides of fresh specimens and a live specimen taken on the collection trip to Flores Island. Body and head translucent, fading to white after death. Belly snow white. Middle of lateral surface with five to six larger golden-yellow spots alternating with smaller spots. About three major dark blotches inside the trunk. Two or three rows of smaller, rounded golden-yellow spots scattered on upper part of body. Lower half of body with a row of golden-yellow spots. Cheek with an oblique yellow bar. Snout with a yellow band

from the margin of the eye through the upper jaw; a yellow spot on upper jaw. Operculum with a line in upper part and a spot in lower. Ventral branchiostegal membrane with some scattered tiny yellow spots. A horizontal yellow line behind eye. Eyes snow white except the pupils. A large rounded, yellow shoulder-spot below the second spine of first dorsal and above the base of pectoral fin. Some of larger golden-yellow spots with many tiny grey dots within them. Caudal fin base with a diaper shaped black blotch. Background of fins translucent. First dorsal fin with black blotch from the upper distal margin of membrane before the third spine, then downward to fin base between the second and the third spines, the middle part of the first dorsal fin somewhat orange. Lower part of first dorsal fin with one to two rows of rounded yellow spots. Basal half of the second dorsal fin with two or three rows of minute yellow spots. Caudal fin also with five to six rows of minute yellow spots. Pectoral fin base with a short, horizontal yellow bar in upper part and rounded yellow spots in lower part.

Color of preserved specimens: All yellow and shiny coloration faded after fixation in formalin. Body pale white with some indistinct blotches (enclosing tiny grey dots) on head and upper half of body. First dorsal blotch greyish. Anal and pelvic fins colourless. Diaper blotch in caudal base present.

Etymology

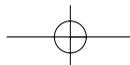
The species “*aureus*”, yellow in Latin, “*aureus*”, refers to the many “golden-yellow” spots scattered on the body and fins.

Distribution

So far, this new species has only been found at the type locality: Maumere, Flores Island, Indonesia. However, it is expected to be recorded more widely in the future.

Comparison (Table 1)

Fusigobius aureus is quite different from: (1)



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Table 1. Morphological comparison of nominal species of *Fusigobius* from the Indo-Pacific region

	<i>F. aureus</i> n. sp.	<i>F. duospilus</i>	<i>F. inframaculatus</i>	<i>F. longispinus</i>	<i>F. neophytus</i>	<i>F. signipinnis</i>
First dorsal fin longest spine	1st & 2nd	1st	1st (2nd/1st=72-80%)	1st (2nd/1st ≤ 60%)	1st & 2nd	1st & 2nd
Filamentous spine	--	--	1st & 2nd	1st	--	--
Pelvic fin frenum	absent	present	present	present	present	absent
connecting membrane	quite small, concave	medium, concave	medium, concave	medium, concave	large	quite small, concave
Coloration spots on lateral body	round golden yellow spots	tiny brown spots	round yellow spots	round yellow spots	tiny dark brown spots	tiny dark brown spots
Dark blotch (spot) on caudal fin base	diaper, smaller than orbit	triangular, smaller than orbit	triangular, larger than orbit	triangular smaller than orbit	oblong, smaller than orbit	triangular, smaller than orbit
Blotch between 5-6th spine of first dorsal	--	a dark round blotch	--	--	--	--
Vertical bar in middle caudal peduncle	--	--	--	--	a dark bar	--

F. longispinus Goren and *F. inframaculata* (Randall) in lacking elongate filamental spines in the first dorsal fin; and (2) *F. neophytus* (Gunther) and *F. duospilus* Hoese and Reader, in having widely separated pelvic fins and lacking a frenum. *F. aureus* is most similar to *F. signipinnis* Hoese and Obika in having widely separated pelvic fins and some meristic characters. However, these two species can be distinguished by the following characters: (1) *F. aureus* has slightly more pectoral fin rays (18-19) than *F. signipinnis* (16-18); (2) *F. aureus* has larger golden-yellow spots on its body while *F. signipinnis* has minute brown or reddish-brown spots; (3) the basal part of the second dorsal of *F. aureus* has some rows of yellow spots but with thin brown stripes in *F. signipinnis*; (4) *F. aureus* has longer last ray of pelvic fins (about 3/4 of fourth ray length) than that of *F. signipinnis* (less than 2/3 of fourth ray length); (5) the caudal fin of *F. aureus* has many rows of rounded golden-yellow spots, but the caudal fin of *F. signipinnis* always lacks distinct, colorful markings.

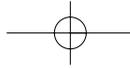
ACKNOWLEDGMENTS

The authors thank Dr. G. Allen, Museum of Western Australia, Australia, Dr. Gomon, Museum of Victoria, Australia, and other kind co-workers for helping with collecting coral

reef fishes during the Workshop of the Fourth Indo-Pacific Fish Conference in Maumere, Flores Island, Indonesia in 1993.

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(Received Dec. 3, 1996; Accepted Jan. 7, 1997)