

***Halichoeres orientalis*, a New Labrid Fish from Southern Japan and Taiwan**

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John E. Randall (1999) *Halichoeres orientalis*, a new labrid fish from southern Japan and Taiwan. *Zoological Studies* 38(3): 295-300. A new species of labrid fish, *Halichoeres orientalis*, previously misidentified as *H. ornatissimus* (Garrett), is described from specimens from the Ryukyu Is. and Ogasawara Is., Japan. It is also known from Taiwan and Kochi Prefecture, Japan. It differs from the similar *H. ornatissimus*, which ranges broadly elsewhere in the Pacific, in having a more complexly colored body and lower gill-raker counts (16-18, vs. 17-20 for *ornatissimus*). *H. cosmetus* Randall and Smith of the western Indian Ocean, also a related species, has 11 instead of 12 dorsal and anal soft rays.

Key words: Fish taxonomy, Labridae, *Halichoeres*, Japan, Taiwan.

In 1975-1977 the author and colleagues collected specimens of a labrid fish in Okinawa that were identified then as *Halichoeres ornatissimus* (Garrett, 1863). In 1991, while collecting and photographing the same species in the Ogasawara Is., some differences in color were noted between the southern Japanese form and the species from elsewhere in the Pacific, and the species was identified only as *Halichoeres* sp. (Randall et al. 1997). Recent comparison of specimens from Hawaii and French Polynesia with those from southern Japan has revealed that the latter represent a new species which is described herein. Its presence in Taiwan is indicated by Shen (1993: pl. 148, fig. 6) and by underwater photographs taken by the author. It is described below as *Halichoeres orientalis*, n sp., thus bringing the total number of Indo-Pacific species of the genus, the largest of the Labridae, to 47 (Parenti and Randall, in press).

***Halichoeres orientalis*, new species**

(Figs. 1-5; Tables 1, 2)

Halichoeres ornatissimus (non Garrett) Kamohara, 1958: 11 (Kochi Prefecture, Japan).

Halichoeres ornatissimus (non Garrett): Masuda et al. 1984: 208, pl. 203 M, N (Kochi southward in Japan).

Halichoeres ornatissimus (non Garrett): Kuitert 1992: 180, fig. C (Iriomote I.).

Halichoeres ornatissimus (non Garrett): Shen 1993: 458, pl. 148, fig. 6 (Taiwan).

Halichoeres ornatissimus (non Garrett): Masuda and Kobayashi 1994: 272, fig. 8, 273, figs. 1, 2.

Halichoeres ornatissimus (non Garrett): Okamura and Amaoka 1997: 492, 3 figs. of middle row of p. 493.

Halichoeres sp. Randall et al. 1997: 45 (Ogasawara Is.).

Holotype: URM-P 5980, female, 75.6 mm, Ryukyu Is., Okinawa, Sesoko I., off east side, reef in 4 m, spear, J.E. Randall, 15 Sept. 1977.

Paratypes: BMNH 1998.11.9.1, 65.8 mm, Ryukyu Is., Okinawa, south end, Tokumasari Reef, spear, J.E. Randall, 4 June 1975; URM-P 335, 68.2 mm, Ryukyu Islands, Yaeyama Group, Kuroshima, T. Yoshino, 27-30 July 1976; BPBM 22329, 67.3 mm, same data as holotype except depth 2.5 m; URM-P 18508, 51.3 mm, Ryukyu Is., Okinawa, Onna Village, 30 m, M. Masui and S. Ikemiyagi, 2 Dec. 1986; USNM 350960, 2: 71.3-75.2 mm, Ogasawara Is., Chichijima, Miyanoama Bay, spear, J.E. Randall, 20 July 1991; BPBM 35137, 71.0 mm, Ogasawara Is., Ani-jima, northeast side, bay south of Kobusha Point, 10 m, rotenone, J.E. Randall, J.L. Earle, H. Ida, H. Terashima, and J. Kimura, 21 July 1991; ASIZP 59817, 38 mm, Taiwan, Lanyu (Orchid I.), Wukungtung, 3 m, rotenone, J.P. Chen, 6 July 1993.

Diagnosis: Dorsal rays IX,12; anal rays III,12; pectoral rays 13; lateral-line scales 27, each with 2-4

tubules; no scales on cheek or opercle; no scales basally on dorsal or anal fins; gill rakers 16-18; body depth 3.5-3.8 in SL; a single pair of stout canines anteriorly in each jaw; a strong canine at corner of mouth; 9th dorsal spine longest, 2.75-3.1 in head length; green with 4 longitudinal salmon pink to orange bands on head, the 2nd and 3rd passing

through eye, the 3rd bifurcating on opercle; a small vertically elongate black spot behind eye; upper 3 bands of head continuing as stripes anteriorly on body, and 2 more commencing from beneath pectoral fin, these stripes variously breaking into segments and forming 6 groups of irregular spots dorsally on body, the 2nd group in a dusky blotch; pre-

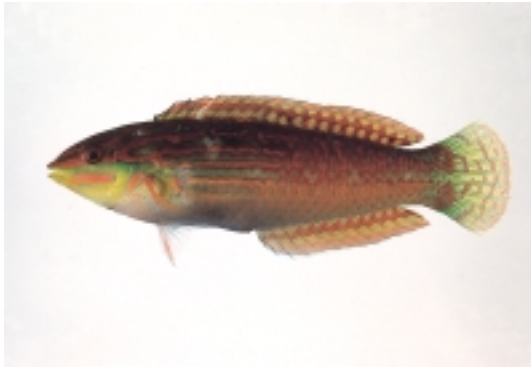


Fig. 1. Holotype of *Halichoeres orientalis*, URM-P 5980, female, 75.6 mm SL, Sesoko I., Okinawa (T. Yoshino).



Fig. 4. *Halichoeres orientalis*, probable male, Chichi-jima, Ogasawara Is. (J. Randall).



Fig. 2. *Halichoeres orientalis*, Kerama I., Okinawa (J. Randall).



Fig. 5. *Halichoeres orientalis*, Lanyu, Taiwan (J. Randall).



Fig. 3. *Halichoeres orientalis*, probable male, Ani-jima, Ogasawara Is. (J. Randall).



Fig. 6. *Halichoeres ornatissimus*, Gunung Api, Banda Sea, Indonesia (J. Randall).

sumed male with this blotch black and containing small irregular yellow spots; another presumed male phase blackish posteriorly to a vertical through base of 6th dorsal spine.

Description: Dorsal rays IX,12; anal rays III,12; all dorsal and anal soft rays branched, the last to base; pectoral rays 13, the upper 2 unbranched; pelvic rays I,5; principal caudal rays 14, the upper and lower unbranched; upper and lower procurrent caudal rays 5, the most posterior segmented; lateral-line scales 27, plus 1 pored scale posterior to caudal-fin base; scales above 1st lateral-line scale to origin of dorsal fin 2; scales above lateral line to base of middle dorsal spines 2; scales below lateral line to origin of anal fin 9; circumpeduncular scales 20; gill rakers 18 (16-18; see Table 2); branchiostegal rays 5; vertebrae 25.

Body depth 3.55 (3.5-3.8) in SL; body compressed, the width 2.2 (2.2-2.25) in body depth; head length 3.15 (3.0-3.2) in SL; dorsal profile of head evenly convex; snout moderately pointed, its length 3.0 (2.95-3.15) in head length; fleshy orbit diameter 4.8 (4.3-4.75) in head length; interorbital space

convex, the least bony width 4.8 (4.8-5.3) in head length; caudal-peduncle depth 2.05 (2.1-2.2) in head length; caudal-peduncle length (measured horizontally from rear base of anal fin) 3.65 (3.65-4.4) in head length.

Mouth terminal, slightly oblique, and small, the maxilla extending slightly posterior to a vertical through anterior nostril, the upper-jaw length 3.6 (3.6-3.8) in head length; a pair of strong, forward-projecting canines at front of each jaw with a small, partly compressed tooth directly lingual; 2nd tooth in jaws conical, about 2/3 length of 1st canine, and not as sharp; remaining teeth (about 7-8) close-set and incisiform with rounded tips; a large forward-projecting tooth posteriorly on upper jaw at corner of mouth; no teeth on roof of mouth; pharyngeal dentition of 71.3-mm paratype: each upper pharyngeal plate with 14 teeth, as short conical teeth anteriorly and molari-form posteriorly, the middle molar of medial row the largest; T-shaped lower pharyngeal plate with a very large subtriangular molar in the middle posterior position, flanked by 3 rows of nodular teeth; median limb of lower plate with conical teeth anteriorly

Table 1. Proportional measurements of type specimens of *Halichoeres orientalis* expressed as percentages of standard length

	<i>Holotype</i>		<i>Paratypes</i>			
	URM-P 5980	URM-P 18508	BMNH 1998.11.9.1	BPBM 22329	BPBM 35137	USNM 350960
Standard length (mm)	75.6	51.3	65.8	67.3	71.0	75.5
Body depth	28.1	26.7	27.4	28.6	28.2	26.4
Body width	12.6	12.5	12.9	12.6	12.7	11.9
Head length	31.8	33.4	33.4	33.3	31.6	31.2
Snout length	10.6	11.3	10.8	10.5	10.4	10.3
Orbit diameter	6.6	7.8	7.3	7.3	6.9	6.6
Interorbital width	6.6	6.8	6.5	6.3	6.4	6.5
Caudal-peduncle depth	15.4	15.4	15.1	15.3	15.2	14.9
Caudal-peduncle length	8.7	8.5	7.6	8.3	8.7	8.5
Predorsal length	30.2	33.2	31.9	31.2	31.7	29.7
Preanal length	57.1	59.0	59.2	55.9	57.9	56.7
Prepelvic length	32.6	35.2	35.4	35.5	32.5	31.8
Upper-jaw length	8.9	8.8	9.1	8.9	8.8	8.6
Dorsal fin base	63.7	62.0	63.7	64.0	64.0	64.6
First dorsal spine	aberrant	6.0	6.1	6.2	6.0	5.9
Second dorsal spine	7.8	7.6	7.7	7.7	7.7	7.6
Longest dorsal spine	11.6	11.3	10.8	11.2	10.2	10.8
Longest dorsal ray	14.4	14.8	15.2	14.4	15.3	14.6
Anal fin base	38.6	36.3	37.2	38.1	37.8	38.2
First anal spine	4.1	4.2	4.4	4.6	4.5	4.4
Second anal spine	6.7	7.2	6.1	6.0	7.1	6.5
Third anal spine	8.2	8.1	8.6	8.0	8.5	8.0
Longest anal ray	13.2	13.8	14.4	13.9	14.7	14.5
Caudal-fin length	22.7	24.1	25.0	23.2	22.8	23.4
Pectoral-fin length	19.4	21.3	20.0	20.2	20.0	19.7
Pelvic-spine length	12.0	12.1	12.1	12.3	11.8	12.4
Pelvic-fin length	17.0	16.9	16.8	17.2	17.0	17.3

(beginning in a single row), soon becoming nodular, ending in 3 rows posteriorly. Tongue slender and rounded, set well back in mouth. Lips large and fleshy. Gill rakers short, the longest on 1st gill arch about 1/3 length of longest gill filaments.

Edge of preopercle free from level of mouth to below anterior edge of orbit; anterior nostril a very small membranous tube anterior to upper 5th of eye; posterior nostril larger than sensory pores of head, dorso-posterior to anterior nostril, the internarial distance about 2/3 pupil diameter. Suborbital pores from behind middle of eye to below anterior margin of eye 10 (9-13); a series of 9 pores along free edge of preopercle.

Scales cycloid; lateral line continuous, deflected sharply downward below 9th to 11th dorsal soft rays to straight peduncular portion; lateral-line scales with 2-4 tubules (those of anterior portion usually with 3 or 4, and those of descending and straight posterior section usually with 2); head naked except for a triangular area of scales on nape which are progressively smaller anteriorly, the apex over posterior margin of preopercle; no scales basally on median fins except about basal third of caudal fin; pelvic fins with a slender axillary scale above spine; a small scaly process of 2 scales extending posteriorly from between base of pelvic fins, the posterior scale pointed.

Origin of dorsal fin above base of 2nd lateral-line scale, the predorsal distance 3.3 (3.0-3.33) in SL; 1st dorsal spine of holotype damaged or aberrant (1st spine of paratypes 5.3-5.55 in head length); 2nd dorsal spine 4.1 (4.1-4.4) in head length; 9th dorsal spine longest, 2.75 (2.9-3.1) in head length; middle dorsal soft rays longest, 2.2 (2.1-2.3) in head length; origin of anal fin below base of first dorsal soft ray or slightly anterior to it, the preanal length 1.75 (1.7-1.8) in SL; 1st anal spine 7.75 (7.0-7.95) in head length; 2nd anal spine 4.75 (4.45-5.55) in head length; 3rd anal spine 3.9 (3.7-4.15) in head length; middle anal soft rays longest, 2.4 (2.15-2.4) in head length; caudal fin rounded, its length 1.4 (1.35-1.45) in head length; 3rd pectoral ray longest, 1.65 (1.55-1.65) in head length; pelvic fins short, not reaching anus, the 1st soft ray longest, 1.85 (1.8-2.0) in head length.

Color of holotype in alcohol: entirely pale except

for a small vertically elongate dark brown spot behind eye (2 small black spots evident on dorsal fin of holotype when fresh no longer visible).

Color of 75.5-mm paratype (more recently collected and much less faded than holotype): body pale yellowish brown with 3 brown stripes on upper half; a series of 6 sections of these stripes more darkly pigmented, thus appearing as dark quadrangular blotches, the 2nd blotch (below dorsal spines VI to IX) darkest, the posterior 4 progressively fainter; head light brown above upper edge of eye; a vertically elongate dark brown spot behind eye, its length slightly greater than pupil diameter; a brown stripe from side of upper lip to front of orbit, bordered above by a pale band of about equal width; anterior and ventral edge of orbit narrowly dark brown; fins pale except for 2 ovate blackish spots in soft portion of dorsal fin (greatest length of spots about equal to orbit diameter), 1 on 3rd membrane of soft portion of fin and extending onto more than half of second membrane, and 1 on 11th membrane and extending more than half onto 10th membrane.

Color of holotype when fresh: green with a complex pattern of salmon pink to orange stripes, bands, and spots; head with 4 longitudinal bands, the 1st passing above eye, the next 2 passing through eye, the lowermost of these touching black spot behind eye and bifurcating on opercle; 4th band across cheek (bands narrowly edged in black and outwardly in blue); an oblique band at edge of operculum in front of pectoral-fin base, and another at pectoral-fin base; 6 stripes, edged in dark red, on about anterior 1/3 of body, the upper 4 as continuations of head bands, the uppermost extending along base of dorsal fin and breaking into spots; 5th and 6th stripes extending posteriorly from beneath pectoral fin; a quadrangular blackish blotch below dorsal spines VI to IX and above 3rd body stripe (anterior portion of blotch pale as a result of spine wound); a lesser blackish blotch below base of 1st to 4th dorsal soft rays; stripes breaking posteriorly into irregular spots on upper half of body, some forming circles or a partial reticulum; lower half of body posterior to stripes with a vertically elongate, red-edged, salmon pink spot at edge of each scale, this pattern continuing faintly anteriorly onto abdomen; dorsal fin orange with 2 longitudinal green bands that break into spots, 1 per membrane, on soft portion of fin; a small blackish spot near base on 3rd and 11th membranes of soft portion of fin; anal fin similar to dorsal but the outer green band continuous (though with wavy borders); caudal fin light green with 4 transverse arcs of elongate orange spots, the most posterior submarginal in fin and nearly continuous; paired fins

Table 2. Gill-raker counts of *Halichoeres orientalis* and *H. ornatus*

	Gill rakers				
	16	17	18	19	20
<i>H. orientalis</i>	4	4	2		
<i>H. ornatus</i>		4	14	2	1

pale, the pelvics with an orange streak, narrowly edged in pale green, on 1st soft ray.

Although no male specimens were collected, underwater photographs of presumed males show a black blotch below spines VI to IX with bright yellow markings of small size (Fig. 3), or the fish are entirely blackish posterior to a vertical at base of 6th dorsal spine, the orange markings obscure (but small irregular orange-yellow spots anteriorly in the blackish zone are conspicuous), and the caudal fin is almost black with a narrow pale blue posterior margin (Fig. 4). It is not known if the 2nd presumed male color pattern represents a more mature individual or whether it is courtship coloration. The 38-mm juvenile paratype is colored like the females except the 2 dark brown spots extend over the full width of the 2nd and 3rd and the 10th and 11th membranes of the soft portion of the dorsal fin.

Remarks: This species is named *Halichoeres orientalis* in reference to its occurrence in southern Japan and Taiwan. It is easy to understand how this species could be misidentified as *H. ornatissimus* because of the similarity of the 2 in color. The head bands are much alike, but the pattern on the body of *ornatissimus* is somewhat different (Fig. 6 of *ornatissimus* from Indonesia). Other color illustrations of *H. ornatissimus* from Indonesia may be found in Kuitert (1992: 179, fig. D), Masuda and Kobayashi (1994: 273, fig. 7), and Okamura and Amaoka (1997: 494, lower right fig.), the last 2 misidentified as *H. margaritaceus*. The adult Hawaiian form is illustrated in color by Randall (1985: fig. 113) and Randall (1996: 131, lower fig.), and a juvenile by Hoover (1993: 153, upper fig.).

Adults of the 2 species differ in color pattern as follows:

1. There are green stripes anteriorly on the side of the body of *orientalis*, whereas these are broken into series of green spots on *ornatissimus*.
2. The orange markings dorsally on the body of *orientalis* become irregular and clump to form a series of 6 aggregates, and the green around the orange markings darkens (becoming black in the 1st aggregate below the posterior spinous portion of the dorsal fin); more posterior aggregates progressively less dark. In *ornatissimus* the orange and green markings are continuous.
3. Large adult males of *orientalis* are predominately blackish, whereas no melanistic males of *ornatissimus* are known.

A modal difference was also found in the gill-

raker counts, as shown in table 2. The counts of *H. ornatissimus* were taken from specimens from 4 Bishop Museum lots from the Hawaiian Is. and 3 lots from islands of French Polynesia.

Halichoeres cosmetus Randall and Smith (1982: 15, pl. 7, figs. A, B) of the western Indian Ocean is also a related species, having the same pattern of bands on the head and other similarities in color. It has the same range of gill-raker counts as *H. ornatissimus*, but it differs from both *ornatissimus* and *orientalis* in having 11 instead of 12 soft rays in both the dorsal and anal fins. Also its body color pattern is more consistently striped.

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東方海豬魚 (*Halichoeres orientalis*)，記南日本及臺灣之一新種隆頭魚

John E. Randall¹

本文根據採自日本琉球及小笠原諸島的標本描述一新種隆頭魚：東方海豬魚(*Halichoeres orientalis*)。本種魚亦分布於臺灣及日本的高知縣，本種魚過去曾被誤鑑為飾妝海豬魚(*H. ornatissimus* Garrett, 1863)，它們主要的差別在於東方海豬魚之分布較廣，可達太平洋各處，體色更複雜，鰓耙數較少（16-18，飾妝海豬魚為 17-20）。波紋海豬魚(*H. cosmetus* Randall and Smith)為另種分布於西印度洋的相似種，其背鰭及臀鰭軟條數 11，較本種之 12 為少。

關鍵詞：魚類分類，隆頭魚科，海豬魚屬，日本，臺灣。

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