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Coris nigrotaenia, a new wrasse (Perciformes: Labridae) from the Northwest Indian Ocean

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Abstract

The wrasse *Coris nigrotaenia* is described from four specimens collected in the Arabian Sea, Northwest Indian Ocean, off central/southern Oman and a single specimen purchased at the national fish market in Muttrah, Oman. It is a large species (largest specimen, 314 mm SL) distinct in having a central vertically elongate black band which begins at the base of the dorsal fin (below the sixth, seventh and eighth dorsal spines) and extends to the mid-portion of the pectoral fin, and 51-52 lateral-line scales. Juvenile and intermediate fish have a black caudal spot located dorsally at the base of the caudal fin. Adults lose this spot but have numerous blue spots, some formed into lines, on the body and dorsal, caudal and anal fins.

Introduction

The wrasses of the genus *Coris* are restricted to the Indo-West Pacific, with the exception of *C. julis* (Linnaeus, 1758) in the Mediterranean Sea and eastern Atlantic. Most species are brightly colored and associated with coral reefs. These wrasses, along with many members of the family Labridae, are known to exist in one or more distinct color phases as they grow from juvenile to adult. The adult color phase may also vary depending upon the sex of the fish.

The genus *Coris* was proposed by Lacépede (1801) for the type species *C. aygula* Lacépede, which ranges from French Polynesia to the Red Sea. The genus is characterized as follows: an elongate compressed body; IX,12 dorsal rays; III,12 anal rays; continous lateral line; small scales (48-85 in lateral line); naked head (except where scaled dorsally); slightly emarginate to rounded caudal fin; a single series of conical teeth in jaws increasing in size anteriorly, the most anterior as well-developed canines; a few rows of small nodular teeth in jaws medial to lateral conical series; some enlarged molariform teeth on upper and lower pharyngeal bones in addition to small blunt conical teeth and small molars.

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In March 1989 the first author collected a juvenile specimen of an unknown labrid fish while snorkeling off the northern tip of Masirah Island in the Arabian Sea. This fish was kept alive in an aquarium until it could be photographed and preserved (Fig. 1). In October of 1989 an adult specimen was obtained by the second author from the by-catch of a commercial fishing trawler operating in Omani territorial waters of the Arabian Sea. A third adult specimen was purchased at the national fish market in Muttrah, Oman in March of 1990; this fish was frozen and later photographed by John E. Randall (Plate 2). In 1993, while diving in 7-8 m on the northwestern side of Masirah Island, Randall speared two additional individuals of this wrasse.

Examination of these specimens revealed that they represent an undescribed species of *Coris*; it is described below.

Materials and methods

Type specimens are deposited in the California Academy of Sciences, San Fransisco (CAS); the Bernice P. Bishop Museum, Honolulu (BPBM), and the U.S. National Museum of Natural History, Washington, D.C. (USNM). Data in parentheses in the description refer to paratypes.

Our measurements follow Randall and Kuiter (1982) but we repeat the measurement definitions here. Standard length (SL) is measured from the front of the upper lip or upper canine teeth (whichever is most anterior) to the posterior end of the hypural plate (base of the caudal fin). Head length is the distance from the same anterior point to the posterior end of the opercular flap. Depth of body is the greatest depth. Body width is measured just posterior to the gill opening. Orbit diameter is the fleshy diameter, but interorbital width is the bony width. Depth of caudal peduncle is the least depth; length of caudal peduncle is measured horizontally from the rear base of anal fin to base of caudal fin. Lengths of spines and rays are measured from radiographs. Pectoral-ray counts include the uppermost rudimentary ray. Gill-raker counts include all rudiments and were taken from the right side only. Body dimensions were recorded in millimeters (mm) using dial calipers; morphometric values are expressed in percent of standard length (SL).

Coris nigrotaenia, new species
Figures 1-3, Table 1

Holotype. CAS 73319, male, 311 mm SL, Muttrah Fish Market, Oman, "caught near Muscat", J.K.L. Mee, 11 February 1990.

Paratypes. CAS 82187 , 70.6 mm SL, Masirah Island, northeast of memorial on northern tip of island, Arabian Sea, Oman, northwest Indian Ocean, 1 m, J.K.L. Mee, 7 March 1989; BPBM 34503, female, 314 mm SL, Korean trawler by-catch, Arabian Sea, fishing area off Ras Madrakah, Oman, bounded as follows: North 19°10'N, South 19°00'N, East 58°10'E, West 58°00'E, S.R. Hare, October 1989;

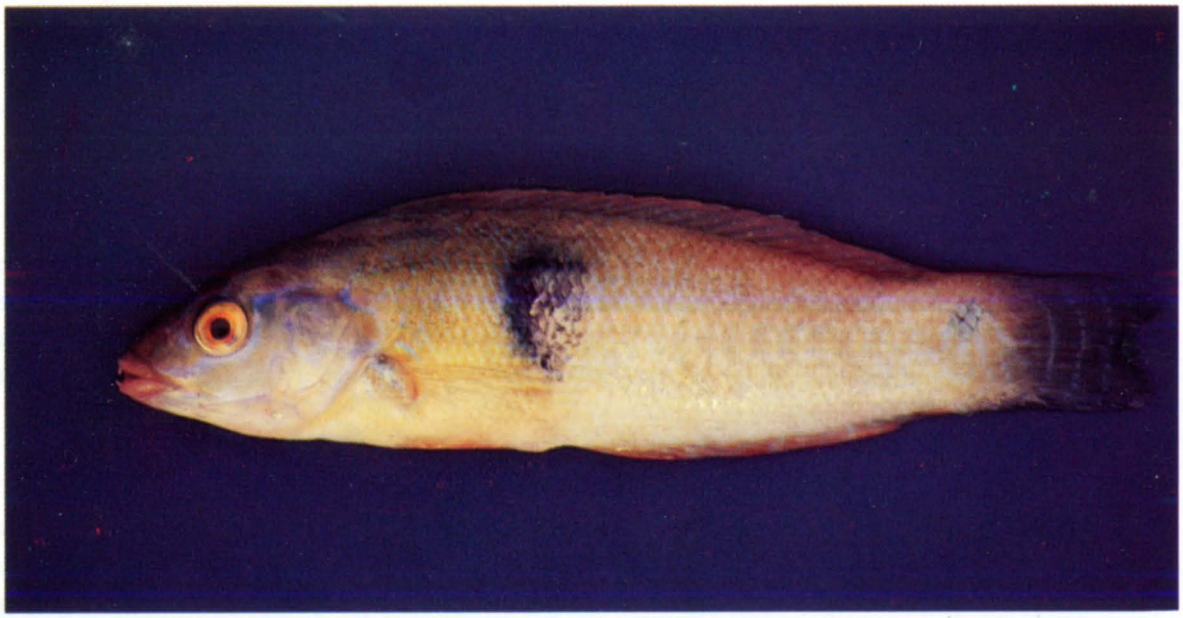

Figure 1. Paratype of *Coris nigrotaenia*, juvenile, 70.6 mm SL, Masirah Island, Oman, CAS 82187 (photograph by Jonathan K.L. Mee).

Table 1. Proportional measurements of type specimens of *Coris nigrotaenia* (expressed as a percentage of standard length).

	Holotype		**Paratypes**		
	CAS 73319	BPBM 34503	USNM 329442	BPBM 36183	CAS 82187
Standard length (mm)	311.0	314.0	223.0	194.0	70.6
Depth of body	36.2	37.1	33.0	30.9	27.8
Width of body	13.7	14.7	13.8	14.1	10.3
Head length	31.6	33.2	31.2	30.8	33.7
Snout length	7.9	9.9	8.6	9.0	8.9
Orbit diameter	4.3	4.3	4.4	4.4	6.8
Interorbital width	7.4	6.6	6.1	5.9	4.9
Depth of caudal peduncle	14.8	15.7	17.1	16.6	15.0
Length of caudal peduncle	9.8	8.9	9.2	9.5	10.7
Predorsal length	27.1	28.5	29.5	28.1	31.6
Preanal length	52.3	54.8	53.7	52.6	51.4
Prepelvic length	30.4	28.6	30.2	28.4	32.6
Length of first dorsal spine	6.0	4.4	4.5	4.2	3.0
Length of ninth dorsal spine	10.7	10.2	9.2	7.0	9.0
Length of longest dorsal ray	11.0	12.0	10.0	10.1	6.9
Length of first anal spine	3.8	2.6	2.4	2.4	4.0
Length of longest anal ray	10.5	9.4	8.6	8.6	6.2
Length of caudal fin	24.0	21.2	18.0	17.3	20.7
Length of pectoral fin	22.5	20.0	20.5	19.1	21.2
Length of pelvic spine	10.1	12.6	10.7	10.9	10.5
Length of pelvic fin	33.8	23.7	21.5	18.7	16.4

BPBM 36183, female, 194 mm SL, central coast of Oman, Masirah Island, northwest side, wreck of "Electra", 20°42'24"N, 58°53'26"E, 7-8 m, spear, J.E. Randall, 21 November 1993; USNM 329442, female, 223 mm SL, same data as BPBM 36183.

Description

Dorsal rays IX,12; anal rays III,12: pectoral rays 13 or 14; pelvic rays I 5; principal caudal rays 14, upper and lower procurrent caudal rays 6; pored lateral-line scales 51 (51-52); scales above first lateral-line to origin of dorsal fin 9 (6-9); scales below lateral line to origin of anal fin 19 (15-17); circumpeduncular scales 29 (28-30); gill rakers 25 (23-25) branchiostegal rays 6, vertebrae 10+15.

Body moderately elongate, the depth 2.8 (2.7-3.6) in SL, and compressed, the width 7.3 (6.8-9.7) in depth; dorsal profile of head smoothly convex; head length 3.2 (3.0-3.2) in SL; snout length 4.0 (3.2-3.8) in head; orbit diameter 7.4 (4.9-7.7) in head; caudal peduncle about one and a half times as deep as long, the least depth 2.1 (1.8-2.2) in head.

Jaws with an outer row of close-set, forward-projecting, conical teeth which are progressively longer anteriorly, the two anterior pairs broken in the holotype but canine-like in paratypes, the second pair about three-fourths as long as the first pair; side of upper jaw with 9(5-6) conical teeth posterior to the first two pairs, and no canine at corner of mouth (but may be present in very large terminal males - not available in present study); side of lower jaw posterior to anterior two pairs of teeth with 7 conical teeth; an inner row of smaller teeth in jaws, the most anterior conical and somewhat compressed, the second tooth bluntly conical, the remaining teeth nodular.

Lips not fleshy, the outer surface smooth; inner surface of upper lip with 6 well-developed plicae; lower lip with a well-developed ventral flap. Tongue short and broadly rounded.

Gill membranes broadly attached to isthmus with a free fold across; longest gill filament of first arch contained about 1.4 times in orbit diameter; gill rakers short, the longest on first arch nearly one quarter length of longest gill filament.

Lower margin of preopercle free to below posterior edge of orbit; upper margin free nearly to level of lower edge of orbit.

Anterior nostril in a membranous tube in front of dorsal fourth of orbit; posterior nostril larger, oval, covered by a flap from the front, anterior to upper eighth of orbit; internarial distance about one-fifth orbit diameter.

Suborbital pores rimming eye from mid-posteriorily to below front edge of orbit 12 (12-16); pores along free margin of preopercle 18 (17-18), with another 3 anterior in mandibular series; a series of 13 pores begining at upper edge of operculum and running posteriorily on each side of interorbital space and ending between nostrils; a series of about 7-8 pores across nape just anterior to origin of scale rows.

Lateral line continuous, rising steeply at its anterior end, following contour of back to beneath base of eighth dorsal soft ray, then angling sharply downward to straight mid-lateral peduncular portion; tubules of most lateral-line scales

Figure 2. Holotype of *Coris nigrotaenia*, male, 311 mm SL, Oman, CAS 73319 (photograph by John E. Randall).

Figure 3. *Coris nigrotaenia*, about 200 mm SL; East side of Masirah Island, Oman (underwater photograph by John P. Hoover).

of anterior half of body with oblique dorsal and ventral branches, each ending in a single pore; remaining scales with one pore.

Head naked except for small scales on nape in about ten diagonal rows which extend slightly anterior to a vertical at upper end of preopercular margin; scales on side of thorax only slightly smaller than scales of body, but becoming notably smaller ventrally; fins naked, except for small scales on about basal two-fifths of caudal fin and an elongate large scale midventrally at base of pelvic fins.

Space between first two dorsal fin spines about two-thirds that between adjacent pairs of remaining spines; dorsal spines progressively longer, the first 7.3 (7.3-7.6) in head and the ninth 2.9 (3.2-3.7)in head; origin of dorsal fin above the second lateral- line scale; first to fifth dorsal soft rays longest, 3.0 (3.5-3.9) in head; all dorsal and anal soft rays branched, the last to its base; origin of anal fin below base of first dorsal soft ray; first anal spine slender and short, contained about 3 times in third spine, its length 8.4 (12.7-13.1) in head; third anal spine longest, 4.1 (3.9-5.3) in head; first to sixth anal soft rays longest. Caudal fin varying from slightly rounded in juveniles and intermediates to slightly emarginate in adults, 1.3 (1.5-1.8) in head; pectoral fin broadly rounded, the third and fourth rays longest, 1.4 (1.5-1.6) in head; origin of pelvic fins below center of base of pelvic fins; pelvic spine slender. Pelvic fins long in holotype, 3.0 in SL, and moderate in paratypes (4.2-5.3) in SL.

Color. (Holotype in alcohol). Dark bluish-green with a darker vertically elongate bar beginning directly below origin of sixth, seventh, and eighth dorsal spines and extending to level of middle of pectoral fin. Light narrow bands partially encircling and radiating away from eye as follows: one extending downwards from center of eye and then angling sharply to reach corner of mouth, two smaller triangular portions extending about one-third and one-fourth orbit diameter, respectively, below eye on either side of the light band extending to corner of mouth; a third extending directly above center of eye about one-third the orbit diameter; a fourth beginning at dorso-anterior margin of eye and extending upwards across nape and downward, two nearly parallel horizontally wavy bands on operculum beginning about three-fourths of orbit diameter away from eye; each body scale with a light center which is more distinct below lateral line and thus forming vertical lines above the lateral line running posteriorly from dorsal base to lateral line; dorsal fin covered with light brown spots; anal fin with light brown broken lines which follow the curve of the fin margin; caudal fin with six vertical wavy light brown bands; pectoral fins unpigmented.

Juvenile and intermediate paratypes without pattern of spots on body and lines on fins, but with a dark body bar and additionally a dark spot on dorsal portion of caudal peduncle at base of caudal fin. Caudal spot 21 in SL on 70.6 mm juvenile and 34 in SL on largest paratypes (194 and 223 mm SL) showing spot.

Color of holotype prior to fixation and preservation but after freezing (Fig. 2): dark bluish green with a lighter blue spot on the center of each scale, light blue spots on dorsal fin and formed into lines on anal and caudal fin. Narrow bands surrounding eye, as described for preserved specimen light blue. Black bar as described for preserved specimen. Lower jaw lighter in color than rest of body.

Etymology

This wrasse is named Coris nigrotaenia from the Latin nigro, meaning black or dark, and the Greek taenia meaning a band, in reference to the central dark band which is present in juvenile and adult specimens.

Discussion

Our specimens with the exception of the holotype have come from the vicinity of Masirah Island. The underwater photograph (Fig. 3) was also taken at Masirah. Recent underwater field work by Randall and colleagues in the Arabian Sea portion which borders Oman have revealed no additional collections or sightings (pers. comms.).

The holotype purchased at the Muttrah fish market on the southern portion of the Gulf of Oman, was stated by the fish seller to have come from "near Muscat". However, it was purchased at the time of year when large amounts of lobster are transported by truck from central and southern Oman to the Muttrah market for sale. It is quite common for other fishes to fill out a truck load of lobster and thus end up for sale in Muttrah far from their capture point. Despite repeated of visits to the Muttrah fish market over a four year period and a similar number of scuba dives in the area, we are aware of no other specimens or sight records from the Gulf of Oman. We suggest that the holotype was an incidental collection in central or southern Oman and transported to the Muttrah fish market along with seasonal lobster.

Coris nigrotaenia does not closely resemble any known *Coris*. It has similar markings on the head as in adult *Coris frerei* Playfair & Gunther, 1867, but differs in body color and a higher lateral-line scale count (51-52 vs. 71-78). Several adult *Coris* have vertically elongate bars in the same general location as *C. nigrotaenia*, but these bars are light, not dark, as in *C. africana* Smith, 1957 and *C. aygula*. *Coris aurilineata* Randall & Kuiter, 1982, *C. caudimacula* (Quoy & Gaimard, 1834), *C. pictoides* Randall & Kuiter 1982, and *C. variegata* (Ramsey & Ogilby, 1886) all have lateral line scale counts which fall in the range of *C. nigrotaenia*, but all are small species with greatly dissimilar color patterns.

It is likely that a terminal phase male will have more intense color than that shown by our holotype. A large unidentified wrasse, about 300 mm TL, was briefly observed from above the water surface shortly after collecting the 70.6 mm paratype. This wrasse was noteworthy in being a bright turquoise blue and may represent the terminal phase of *Coris nigrotaenia*.

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