

Erythrocles taeniatus, a New Emmelichthyid
Fish from New Caledonia

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Erythrocles taeniatus, a new species of emmelichthyid fish, is described from 36 specimens, 77-159 mm SL, taken by trawl southeast of New Caledonia in 300 m. It is distinguished from its closest known relative, *E. scintillans*, in having modally 12 dorsal soft rays, a slightly more elongate body (depth 3.45-4.1 in SL), shorter head (head length 3.25-3.45 in SL), and different life color (deep pink with a distinct red midlateral stripe).

HEEMSTRA and Randall (1977) revised the Emmelichthyidae which they restricted to three genera: *Emmelichthys* Richardson (four species), *Erythrocles* Jordan (four species), and *Plagiogeneion* Forbes (two species). They noted that the fishes of this family are found in all oceans at latitudes usually less than 40° (distribution map of the family given by Springer, 1982, fig. 19) and usually in the depth range of 100-400 m. Emmelichthyids are bottom oriented and feed on zooplankton. They have the usual characteristics for this mode of life: fusiform body, forked caudal fin, short snout, protrusible oblique mouth, reduced dentition, and numerous long gill rakers. Heemstra and Randall noted that these fishes are distinguished by their unique upper-jaw morphology with a broadly expanded, scaly, exposed maxilla, long slender supramaxilla, and premaxilla with a prominent midlateral process. Johnson (1981) characterized the family further and concluded that it has no close relationship to lutjanoids, sparoids, or haemuloids.

The common name for the Emmelichthyidae was Bonnetmouths, but when the Inermiidae were removed from the family, this name went with it. The common name Rovers is now applied to the Emmelichthyidae (Robins et al., 1991).

Kotlyar (1982) described a new *Emmelichthys* from the southeastern part of the Pacific Ocean. Parin (1991) added three new species of *Plagiogeneion* from the southern Pacific and Indian oceans, thus increasing the number of species in the family to 14.

In early 1990, a trawl haul from 300 m from the ORSTOM research vessel *Alis* at Jumeaux Bank (about 150 km southeast of New Caledonia) resulted in the capture of a large series of an emmelichthyid fish unusual in having a dark red stripe on the side of the body. Study

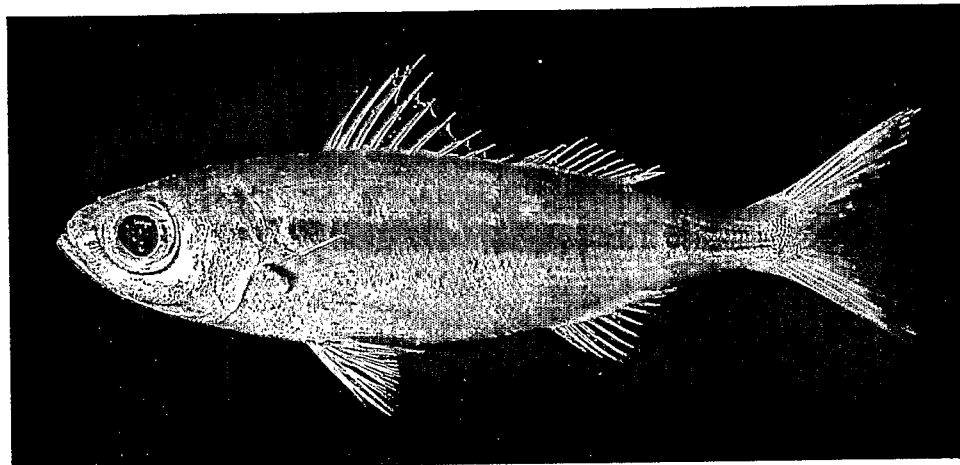
of the specimens has revealed that they represent a new species of the genus *Erythrocles* Jordan (1919). The purpose of the present paper is to describe this species.

MATERIALS AND METHODS

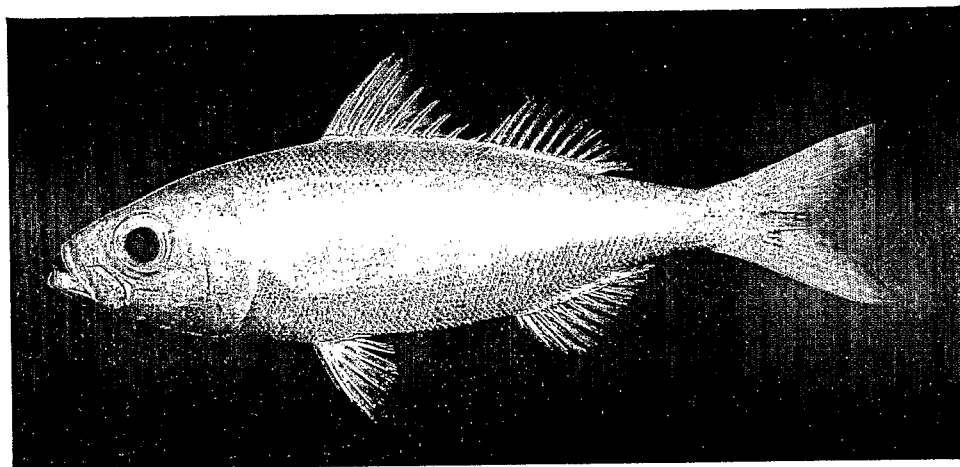
Type specimens have been deposited at the following institutions: Australian Museum, Sydney (AMS); Bernice P. Bishop Museum, Honolulu (BPBM); California Academy of Sciences, San Francisco (CAS); Muséum National d'Histoire Naturelle, Paris (MNHN); National Science Museum, Tokyo (NSMT); J. L. B. Smith Institute of Ichthyology, Grahamstown (RUSI); and United States National Museum of Natural History, Washington, D.C. (USNM). Nontype material is retained at the laboratory of the Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM) in Nouméa, New Caledonia.

Measurements and counts were made as defined by Heemstra and Randall (1977), except for the following: orbit diameter is the greatest fleshy diameter of the orbit, and interorbital width is the least fleshy width of the interorbital space. Preanal length is the distance from the origin of the anal fin to the front of the upper lip. Caudal concavity for fishes with emarginate or forked caudal fins is the horizontal distance between verticals at the tips of the longest and shortest caudal-fin rays.

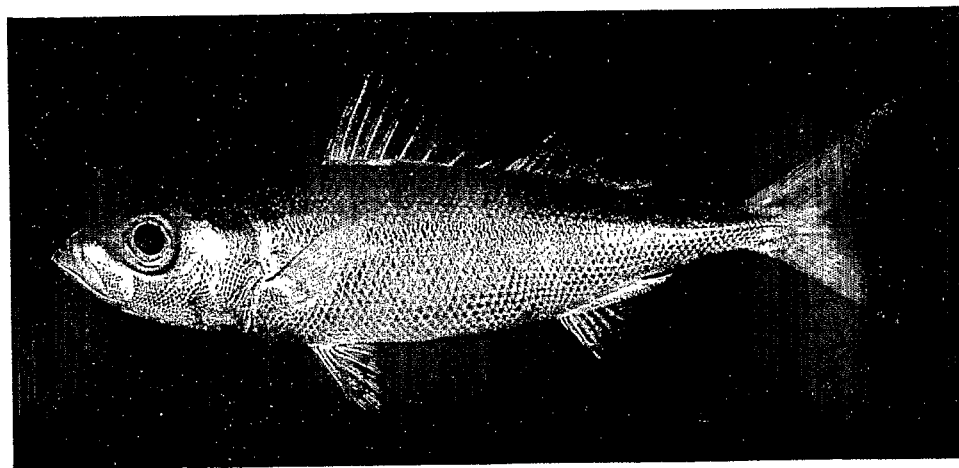
Lengths of specimens are standard length (SL). Proportional measurements are given as percentages of the standard length in Table 1 and in the Diagnosis. Proportions in the text of the Description are ratios rounded to the nearest 0.05. Meristic data for the three Pacific species of *Erythrocles* are presented in Tables 2 and 3. Data in the Description in parentheses refer to paratypes.



A. Holotype of *Erythrocles taeniatus*, BPBM 34618, 155.2 mm SL, Jumeaux Bank, New Caledonia (Philippe Ribère).



B. *Erythrocles scintillans*, BPBM 8509, 263 mm SL, Hilo, Hawaii (John E. Randall).



C. *Erythrocles schlegeli*, BPBM 19165, 350 mm SL, Okinawa (John E. Randall).

TABLE 1. PROPORTIONAL MEASUREMENTS OF TYPE SPECIMENS OF *Erythrocles taeniatus* EXPRESSED AS PERCENTAGES OF THE STANDARD LENGTH

	Holotype BPBM 34618				Paratypes BPBM 34616					
	155.2	77	85	94	127	132	138	140	155	159
Standard length (mm)	155.2	77	85	94	127	132	138	140	155	159
Body depth	27.8	26.8	24.8	24.5	29.0	26.5	27.6	27.0	27.7	27.9
Body width	16.9	13.1	13.2	13.9	16.3	15.4	16.8	16.4	16.5	15.1
Head length	29.8	29.0	29.8	29.6	30.4	30.5	29.7	30.5	30.8	29.0
Snout length	7.6	6.6	6.7	7.0	7.1	7.3	7.3	7.6	7.4	6.9
Upper-jaw length	12.7	11.8	12.1	12.6	12.5	12.6	12.5	12.8	12.6	11.8
Orbit diameter	10.0	11.4	11.2	10.7	10.2	10.1	10.6	10.0	10.5	9.8
Interorbital width	9.0	8.5	8.8	8.9	9.1	9.1	9.1	9.1	9.7	8.9
Caudal peduncle depth	8.9	10.9	10.2	9.8	10.1	9.6	9.3	9.0	9.0	8.9
Caudal peduncle length	20.4	21.8	22.1	21.2	20.4	20.8	22.3	22.1	20.7	20.6
Caudal peduncle width	4.6	4.0	4.5	4.6	4.7	4.6	5.0	4.3	4.5	4.8
Predorsal length	37.5	36.1	35.6	36.0	37.4	37.9	36.1	36.4	37.2	36.4
Preanal length	66.8	65.6	65.9	65.7	67.6	67.1	67.6	68.0	68.0	66.5
Prepelvic length	36.7	33.4	35.7	34.8	37.5	36.6	36.3	35.8	37.7	33.8
Dorsal-fin base	44.3	42.6	41.8	43.7	45.5	44.9	44.2	44.4	43.6	42.3
First dorsal spine	5.8	6.1	5.6	broken	5.1	4.7	6.8	4.8	5.1	5.6
Longest dorsal spine	16.9	15.1	15.3	16.9	broken	16.6	17.0	17.0	broken	broken
Penultimate spine	4.5	4.5	4.4	3.9	4.6	4.5	4.3	4.2	broken	3.8
Last dorsal spine	5.7	5.6	6.5	6.7	5.9	5.9	6.2	5.3	5.2	broken
Longest dorsal ray	broken	10.4	10.8	10.4	10.8	10.4	10.4	10.7	10.6	10.6
Anal-fin base	15.3	15.5	15.3	15.1	15.7	15.2	15.5	14.8	14.3	15.1
First anal spine	2.7	2.8	2.6	2.7	2.5	2.8	3.0	2.9	2.4	2.6
Third anal spine	8.4	8.7	7.2	7.7	8.6	8.4	8.7	7.9	7.5	7.6
Longest anal ray	10.4	10.3	10.7	9.5	11.7	11.0	10.7	10.8	10.9	10.7
Caudal-fin length	27.3	broken	26.1	27.0	26.8	27.2	27.1	29.3	28.0	27.0
Caudal concavity	15.3	—	12.7	14.7	14.7	15.2	15.8	16.5	16.5	14.8
Pectoral-fin length	22.4	19.7	20.7	20.7	21.4	21.6	21.6	22.2	23.0	21.9
Pelvic-spine length	13.2	12.9	13.4	13.6	13.6	13.0	12.7	12.6	12.4	12.3
Pelvic-fin length	17.3	18.3	18.8	18.1	18.3	17.8	17.4	17.8	17.3	17.1

Erythrocles taeniatus n. sp.
Pl. IA

Holotype.—BPBM 34618, ripe female, 155.2 mm, Jumeaux Bank, southeast of New Caledonia at 23°38'9"S, 168°0'0"E, 300 m, bottom trawl, Aztec Sta. 5., R/V "Alis," René Grandperrin, 2 Feb. 1990.

Paratypes (all taken with holotype).—AMS I.31267-001, 4: 79–139 mm; BPBM 34616, 10: 77–159 mm; CAS 76111, 4: 77–148 mm; MNHN 1975-755, 5: 87–137 mm; NSMT-P 34741, 4: 81–134 mm; RUSI 36401, 4: 81–128 mm; USNM 317285, 4: 80–135 mm.

Diagnosis.—Dorsal rays, XI, 11–12 (usually 12), the fin continuous but with a broad deep indentation in the posterior spinous portion; anal rays III, 9–10 (usually 10); pectoral rays 18–20

(rarely 18); lateral-line scales 68–71; body depth 24.5–29.0% SL; caudal peduncle depth 8.9–10.9% SL; head length 29.0–30.8% SL; no protuberances at edge of gill opening; no keel on side of caudal peduncle; pectoral-fin length 19.7–23.0% SL; deep pink, suffused with yellow dorsally, with a broad midlateral red stripe (persists as a dusky band in preservative).

Description.—Dorsal rays XI, 12 (11–12, usually 12—see Table 2), the first soft ray usually simple (first two segmented rays simple in some small specimens), the remaining rays branched; anal rays III, 10 (9–10, usually 10), all segmented rays branched; principal caudal rays 17, the median 15 branched; upper and lower procurrent caudal rays 7, the first two segmented; pectoral rays 20 (18–20, rarely 18—see Table 2), the upper two and lower two or three rays simple; pelvic rays I, 5; lateral-line scales 71 (68–

TABLE 2. FIN-RAY COUNTS OF PACIFIC SPECIES OF *Erythrocles*

	Dorsal soft rays			Anal soft rays			Pectoral rays		
	10	11	12	9	10	11	18	19	20
<i>E. schlegeli</i>	3	6	1	2	8		3	5	2
<i>E. scintillans</i>	1	23			23	1	4	20	
<i>E. taeniatus</i>		5	21	2	24		1	17	8

71) (not including five or six continuing onto base of caudal fin); scales above lateral line to origin of dorsal fin 8 (7-8); scales below lateral line to origin of anal fin 16 (14-16); circum-peduncular scales 30 (29-30); gill rakers 10 + 27 (10-11 + 26-28); pseudobranchial filaments 26 (23-30); branchiostegal rays 7; supraneural (predorsal) bones 3; vertebrae 10 + 14.

Body fusiform, the depth 3.6 (3.45-4.1) in SL, the width 1.65 (1.65-1.95) in depth; head length 3.35 (3.25-3.45) in SL; snout length 3.9 (4.0-4.45) in head; eye large, the orbit diameter 3.0 (2.55-3.05) in head; interorbital space slightly convex, the width 3.35 (3.2-3.4) in head; caudal peduncle slender, about twice as long as deep, the least depth 3.35 (2.65-3.4) in head length; no trace of a keel on side of caudal peduncle or base of caudal fin.

Mouth small, oblique (forming an angle of about 45° to the horizontal), the lower jaw strongly projecting, the maxilla ending before a vertical through middle of eye, the upper-jaw length 2.35 (2.35-2.45) in head; premaxilla strongly protrusible; a band of small villiform teeth in two to three irregular rows anteriorly in lower jaw; upper jaw and palate edentate; tongue triangular, the tip rounded, the upper surface smooth; a broad, U-shaped, shallow notch middorsally on snout into which a fleshy pad adjoined to upper lip fits when mouth fully closed. Nostrils small, in front of upper part of eye a short distance anterior to a vertical at anterior edge of orbit; anterior nostril with a low rim anteriorly and a membranous flap posteriorly which nearly or just reaches narrow posterior nostril. No protuberances at edge of

gill opening. Gill rakers long, the one at angle and adjacent ones of lower-limb longer than longest gill filaments on first gill arch.

Opercle ending posteriorly in two flat spines, the upper smaller and slightly anterior, the space between spine tips about equal to half pupil diameter. Edges of subopercle and preopercle scaled over but readily apparent as ridges.

Lateral line approximately following dorsal contour of body; lateral-line tubules horizontal, short, on basal part of scales. Scales strongly ctenoid; head fully scaled except lips, an arc at edge of front of orbit, a narrow zone anteriorly on snout at base of upper lip, and opercular membrane; scales progressively smaller anteriorly on head; dorsal and anal fins depressible into a basal sheath of small scales; a band of small scales continuous with basal sheath extending onto last two dorsal and anal soft rays nearly to tips; scales of body continuing onto base of caudal fin, forming a thick triangular patch about half distance to end of median rays; pectoral fins with small scales only on base; ventral surface of pelvic fins with small scales extending out on rays about half distance to distal ends; a midventral triangular scaled process at base of pelvic fins about two-fifths length of pelvic spine; each pelvic fin with a slender, scaled, axillary process which extends three-fourths length of pelvic spine.

Origin of dorsal fin above ninth lateral-line scale; dorsal and anal spines slender and easily broken; first dorsal spine short, about one-third length of second spine, 5.15 (4.4-6.5) in head; third or fourth dorsal spine longest, 1.75 (1.75-1.95) in head; penultimate dorsal spine shortest,

TABLE 3. LATERAL-LINE SCALE AND GILL-RAKER COUNTS OF PACIFIC SPECIES OF *Erythrocles*

	Lateral-line scales							Total gill rakers					
	66	67	68	69	70	71	72	35	36	37	38	39	40
<i>E. schlegeli</i>	2	2	3	1	1		1	2	2	3	2	1	
<i>E. scintillans</i>				5	8	9	3	1	1	5	6	8	4
<i>E. taeniatus</i>			3	12	7	4			3	7	9	7	

6.6 (6.45–7.65) in head; last dorsal spine 5.3 (4.4–5.95) in head; second dorsal soft ray usually longest (2.75–2.85) in head; origin of anal fin below base of first to third dorsal soft rays; first anal spine very short, about one-fourth to one-third length of second spine, (9.9–12.8) in head; third anal spine longest, 3.55 (3.3–4.15) in head; first anal soft ray longest, 2.85 (2.6–3.1) in head; caudal fin length 3.65 (3.4–3.85) in SL, the fin strongly forked, the caudal concavity 1.95 (1.8–2.35) in head; fourth pectoral ray longest, 1.35 (1.35–1.45) in head; origin of pelvic fins a short distance posterior to lower pectoral-fin base; pelvic fins short, 1.7 (1.6–1.7) in head.

Color in alcohol: body pale yellowish brown with an indistinct midlateral dusky stripe about three-fourths pupil diameter in width; head light brown (a little darker than body), silvery on opercle in places where scales missing; fins pale; iris yellow, blackish peripherally.

Color of holotype when fresh: deep pink, suffused with yellow dorsally, with a distinct red stripe midlaterally on body; dorsal spines and rays and caudal rays pale pink mixed with pale yellow; anal and pelvic spines and rays whitish; pectoral rays pale yellowish; a narrow, curved, red band at pectoral-fin base; all fin membranes transparent; iris pink.

Remarks.—This species is given the specific name *taeniatus*, from the Greek meaning striped, in reference to the conspicuous, red, midlateral stripe on the body, a feature not readily apparent on any other emmelichthyid fish.

Erythrocles taeniatus was the dominant fish taken in the trawl haul of Aztec Station 5; 260 specimens were obtained. Other fishes collected in the same station represented by nine or more specimens are as follows (number of specimens given in parentheses): *Antigonia rubescens* (63), *Thamnaconus tessellatus* (55), *Antigonia malayana* (40), *Triacanthodes ethiops* (35), *Antigonia capros* (30), *Centroberyx affinis* (17), and *Aulopus japonicus* (9).

Erythrocles taeniatus appears to be small for the genus; the largest specimen measures 159 mm SL. However, larger individuals may have escaped the trawl. Mature males as small as 128 mm SL and females as small as 130 mm SL are among the paratypes. The other two species of *Erythrocles* that occur in the Pacific, *E. scintillans* (Jordan and Thompson, 1912) (Pl. IB herein) and *E. schlegeli* (Richardson, 1846) (Pl. IC) attain at least 365 mm SL and 293 mm SL, respectively.

Erythrocles taeniatus seems most closely related to *E. scintillans*, differing in having modally 12 instead of 11 dorsal soft rays, a slightly more elongate body (depth 24.5–29% SL compared to 27–31% SL for *scintillans*), a shorter head (29–31% SL vs 30–34% SL) (depth and head measurements of *scintillans* from Heemstra and Randall, 1977, table 4), and in its conspicuous red stripe.

Erythrocles scintillans was described from the Hawaiian Islands, and most specimens have been obtained from there. A specimen of this species from Okinawa was illustrated in color as *Erythrocles* sp. by Masuda et al. (1975, pl. 40, fig. E). Heemstra and Randall (1977) wrote that it appears to be *E. scintillans*. This was confirmed by Masuda et al. (1984) who reported it as *E. scintillans* from Okinawa and Owase, Japan (34°N).

Wrobel (1988) recorded *E. scintillans* from the Society Islands from 250–350 m. Bishop Museum has three specimens from Tahiti (BPBM 28053, 230 mm; BPBM 31634, 248 mm; and BPBM 31645, 283 mm); meristic data from these fish are included in Tables 2 and 3.

DiSalvo, Randall and Cea (1988, table 7) listed *scintillans* as a new record from Easter Island. This specimen (BPBM 34615, 277 mm) exhibits slight differences from *scintillans* from other localities and is only provisionally identified as this species. It has 12 dorsal soft rays, 11 anal soft rays, 72 lateral-line scales, and 12 + 26 gill rakers (these counts, marginal for *scintillans*, are not included in Tables 2 and 3); the lower half of the body was silvery white with only a tinge of pink, and the median fins were more red than the usual *scintillans*. The difference in color may be related to the relatively shallow depth of capture, 73 m. More specimens of this form from Easter Island are needed.

The most unusual record of *E. scintillans* is a 91-mm specimen (BPBM 27022) that was taken from the mouth of a Bigeye Tuna (*Thunnus obesus*) caught by long line 225 miles north of Oahu. The fish appears to be a juvenile, not a postlarva, so its occurrence in the pelagic environment is perplexing.

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of *E. taeniatus*, and P. C. Heemstra and P. L. Colin for reviewing the manuscript.

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