

A New Species of Damselfish (Pomacentridae) from Eastern Australia and the Norfolk Island Ridge

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Abstract

A new species of pomacentrid, *Chromis abyssicola*, is described from 28 specimens collected between 1910 and 1978 off south-eastern Australia and remote positions on the Norfolk Island Ridge between New Zealand and New Caledonia. All specimens were trawled at depths ranging from 90 to 152m, well below the limit for most members of the genus. It appears to be allied to three other deep dwelling species: *C. megalopsis*, *C. murationis*, and *C. struhsakeri* but differs in dorsal spine count and its distinctive colour pattern.

Introduction

Chromis is the largest genus of the circum-temperate and tropical family Pomacentridae. It is estimated there are about 70 species represented with the greatest majority inhabiting coral reefs of the Indo-West Pacific region. Although no comprehensive treatment exists, recent regional generic reviews include those of the western tropical Pacific by Allen (1975), the Hawaiian Islands by Randall and Swerdloff (1973), Japan and Taiwan by Randall, Ida, and Moyer (1980), and the Red Sea by Allen and Randall (1981). A much needed overall revision of the group is currently in progress by the junior author. The new species described herein first came to our attention in 1976 when specimens were forwarded to the senior author by Mr R.J. McKay of the Queensland Museum. They were collected during trawl operations aboard the Japanese research vessel "Kaiyo Maru." Additional specimens taken by the "Endeavour" cruise of 1910 were subsequently located at the Australian Museum, Sydney and three others were trawled by the New South Wales State Fisheries research vessel "Kapala" in 1978. The new species is particularly interesting with regards to its deep water habitat which is below depths frequented by most pomacentrids.

The methods of counting and measuring are the same as those described by Allen (1972) except the length of the dorsal and anal spines are measured proximally at the base of the spine rather than the point where the spine emerges from the scaly sheath. Type specimens are deposited at the following institutions: Australian Museum, Sydney (AMS); Bishop Museum, Honolulu (BPBM); British Museum (Natural History), London (BM[NH]); Queensland Museum, Brisbane (QM); United States National Museum of Natural History, Washington, D.C. (USNM); Western Australian Museum, Perth (WAM).

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Systematics

Chromis abyssicola sp. nov.

Figure 1; Tables 1 and 2

Holotype

QM I. 21398, 94.0 mm SL, Norfolk Island Ridge, approximately 520 km NW of northern tip of North Island, New Zealand (32°28.2'S, 167°28.1'E), trawl in 115-122 m depth, R. McKay aboard R.V. "Kaiyo Maru," 13 January 1976.

Paratypes

AMS E.2905, 6 specimens, 90.8-101.2 mm SL, off Cape Moreton, Queensland, Australia (27°10'S, 153°40'E), about 8-11 km SE of navigation light, trawl in 90-93 m, R.V. "Endeavour," 5 September 1910; AMS I.23685-007, 90.5 mm SL, off Nambucca Heads, New South Wales, Australia (between 30°43'S, 153°16'E and 30°40'S, 153°17'E), trawl in 134-152 m, K. Graham aboard F.R.V. "Kapala," 10 October 1978; AMS I.24987-001, 2 specimens, 83.8-86.2 mm SL, off Cape Byron, New South Wales (between 28°43'S, 153°51'E and 28°39'S, 153°50'E), trawl in 128-139 m, K. Graham aboard F.R.V. "Kapala," 1 November 1978; BM(NH). 1985.4.30, 116.8 mm SL, Norfolk Island Ridge, approximately 60 km south of Norfolk Island (29°28.8'S, 168°10.6'E), trawl in 90 m, R. McKay aboard R.V. "Kaiyo Maru," 17 January 1976; BPBM 30352, 2 specimens, 98.3-116.8 mm SL, same data as holotype; QM I.13418, 5 specimens, 78.1-98.8 mm SL, same data as holotype; QM I.13415, 6 specimens, 109.5-120.8 mm SL, same data as BM(NH) paratypes; USNM 270463, 2 specimens, 110.7-115.2 mm SL, same data as BM(NH) paratypes; WAM P.28421-001, 2 specimens, 110.6-113.5 mm SL, collected with holotype.

Diagnosis

A species of the pomacentrid genus *Chromis* allied to a complex of three deep dwelling species characterised by an enlarged eye (2.0-2.9, usually less than 2.5 in head length), 2 spiniform rays on upper and lower edge of caudal fin, 19 or 20 pectoral rays, 28-34 gill rakers on the first arch, and similar body shapes. The group includes *C. megalopsis* Allen (1976) from Western Australia, *C. mirationis* Tanaka (1917) from southern Japan, and *C. struhsakeri* Randall and Swerdloff (1973) from the Hawaiian Islands. *Chromis abyssicola* differs from these species mainly in having 13 dorsal spines instead of 14 (one of two known specimens of *C. megalopsis* has 13 spines), and a distinctive colour pattern featuring a blackish blotch in the pectoral axil which extends above the pectoral fin base.

Description

The range of counts and measurements for paratypes is indicated in parentheses if different from the holotype. Dorsal rays XIII, 14 (13 or 14); anal rays II, 12 (11 or 12); pectoral rays 20 (19 or 20); procurrent caudal spines 2/2; branched caudal rays 13; gill rakers on first branchial arch 8 + 21 = 29 (8-10 + 21-22 = 29-32); vertical scale rows 28 or less; scales above lateral-line to base of middle dorsal spines 1½; scales below lateral-line to anus 10.

Body moderately deep for the genus, the depth 2.0 (2.0-2.1) in standard length, and compressed, the width 2.4 (2.4-2.7) in depth; head length contained 3.2 (3.0-3.3) in standard length; snout 3.6 (3.3-3.7) in head; eye 2.4 (2.2-2.9) in head; interorbital space convex, the bony width slightly less than eye diameter; least depth of caudal peduncle 2.3 (2.3-2.7) in head; length of caudal peduncle 2.3 (2.1-3.0) in head.

Mouth oblique, terminally located, the maxillary reaching to a vertical through anterior edge of eye; teeth of jaws multiserial, conical-shaped with rounded tips. The largest about equal to nostril diameter in height; single nasal opening on each side of snout; nostril with

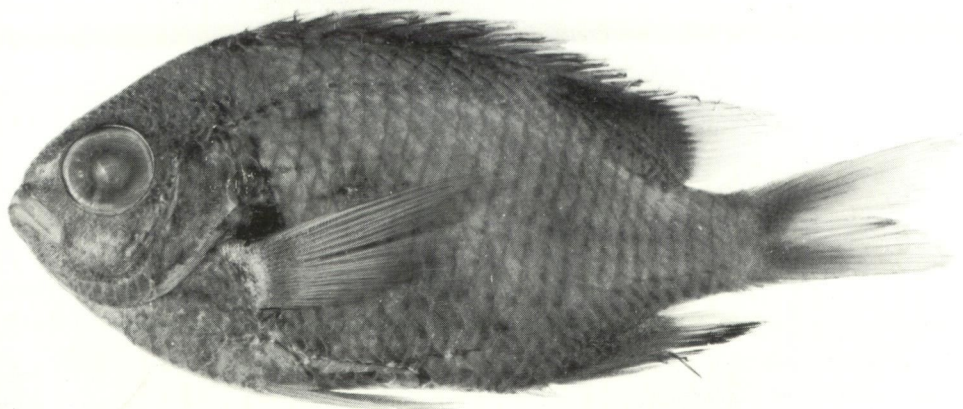


Figure 1: *Chromis abyssicola*, holotype, 94.0 mm SL, Norfolk Island Ridge.

Table 1: Morphometric proportions (as percentage of standard length) for selected type specimens of *Chromis abyssicola*.

Character	Holotype		Paratypes			
	QM I.21398	QM I.3415	QM I.3415	QM I.3415	QM I.13418	QM I.13418
Standard length (mm)	94.0	120.8	113.2	109.5	98.8	82.7
Body depth	49.7	47.0	46.7	48.2	47.3	48.7
Body width	20.7	18.9	18.8	19.2	19.1	17.8
Head length	31.5	30.5	30.6	33.5	31.4	31.7
Snout length	8.8	8.6	9.1	10.0	8.7	8.5
Eye diameter	12.9	11.3	11.5	11.6	12.1	12.2
Interorbital width	10.9	10.8	10.2	10.4	9.8	10.9
Least depth caudal peduncle	13.2	13.2	13.2	12.6	13.0	13.3
Length caudal peduncle	13.8	14.5	10.2	13.2	13.6	11.9
Snout to origin dorsal fin	39.3	34.9	37.2	37.1	36.2	37.4
Snout to origin anal fin	71.6	73.8	68.2	74.9	72.9	72.6
Snout to origin pelvic fin	41.3	47.5	40.2	47.1	47.1	40.3
Length dorsal fin base	64.1	62.2	62.4	63.3	60.0	63.4
Length anal fin base	21.5	20.9	21.9	21.6	21.4	23.8
Length pectoral fin	34.7	32.1	31.3	32.6	32.9	32.9
Length pelvic fin	33.5	31.3	32.6	36.3	33.8	31.8
Length pelvic spine	19.3	17.4	19.1	19.5	17.5	17.9
Length 1st dorsal spine	12.3	9.4	9.0	9.8	10.2	11.6
Length 7th dorsal spine	19.0	18.0	16.9	17.8	16.7	19.3
Length 13th dorsal spine	12.8	12.8	13.3	13.2	12.7	12.1
Length longest soft dorsal ray	22.0	19.2	20.3	21.0	20.6	22.1
Length 1st anal spine	9.3	8.5	8.0	8.4	8.1	9.4
Length 2nd anal spine	20.4	19.4	19.5	20.6	20.3	21.9
Length longest soft anal ray	22.7	20.2	19.4	20.3	20.3	22.6
Length caudal fin	36.7	34.1	35.8	36.2	34.9	37.5

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Table 2: Fin-ray and lateral-line scale counts for type specimens of *Chromis abyssicola*.

Soft dorsal rays		Soft anal rays			
13	14	11	12		
1	27	1	27		
Pectoral rays		Tubed lateral-line scales (damaged and not counted in some specimens)			
19	20	15	16	17	18
2	26	6	7	5	1

low fleshy rim; margin of preorbital and suborbital smooth; pre and suborbital relatively narrow, the greatest width less than $\frac{1}{2}$ eye diameter; margin of preopercle smooth or slightly crenulate; margin of subopercle, interopercle and opercle entire except single flattened spine present on upper portion of opercle near angle.

Scales of head and body finely ctenoid; head and body entirely scaled except area immediately around nostrils, lips, chin and isthmus naked; suborbital with single row of scales; preopercle with 2 major transverse scale rows and row of small scales just below suborbital and along lower margin, rear margin naked; dorsal and anal fins with a basal scaly sheath; caudal fin scaled about $\frac{1}{2}$ distance to end of lobes; paired fins scaled only basally; axillary scale of pelvic fins about $\frac{1}{2}$ length of pelvic spine.

Tubes of lateral-line ending below posterior spines of dorsal fin; 6 (0-6) pored scales posterior to tubed scales; a series of 9 (4-8) pored scales mid-laterally on caudal peduncle to caudal base.

Origin of dorsal fin at level of first tubed scale of lateral line; spines of dorsal fin gradually increasing in length to fourth or fifth spine, remaining spines gradually decreasing in length; membrane between spines moderately incised; first dorsal spine 2.6 (2.7-3.4), seventh dorsal spine 1.7 (1.6-1.9), last dorsal spine 2.5 (2.3-2.6), longest (sixth) soft dorsal ray 1.4 (1.4-1.6), first anal spine 3.4 (3.4-3.9), second anal spine 1.5 (1.4-1.6), longest (fifth or sixth) soft anal rays 1.4 (1.4-1.7), all in head length; caudal fin forked with pointed lobes, its length 0.9 (0.9-1.0) in head length; caudal concavity (measured horizontally between longest and shortest rays) 7.2 (7.1-9.1) in standard length; pectoral fin nearly reaching a vertical through origin of anal fin, the longest ray 0.9 (0.9-1.0) in head length; filamentous tips of pelvic fins of adults reaching slightly beyond origin of anal fin, the longest ray 0.9 (0.9-1.0) in head length.

Colour when fresh: Overall pale bluish-grey with broad dusky grey scale margins; prominent blackish area covering most of pectoral fin axil and extending for short distance (about $\frac{1}{2}$ eye diameter) on side just above pectoral fin base; dorsal fin mainly grey, slightly yellowish posteriorly; caudal fin yellow with broad, dusky grey posterior margin; anal fin light grey except blackish on distal third; pelvic fins whitish; pectoral fins translucent with slight suffusion of yellow.

Colour in alcohol: Overall brown with distinctive dark brown to blackish area on pectoral region as described above; lips pale tan; dorsal fin mainly light brown with outer $\frac{2}{3}$ rds of soft portion translucent; caudal fin light tan to yellow-brown with dusky black posterior margin; anal fin light brown with outer portion blackish; pelvic and pectoral fins pale tan.

Remarks

The species is named *abyssicola* (Latin: "deep dweller") with reference to its depth distribution compared to most other pomacentrids.

Acknowledgements

We thank Mr R.J. McKay of QM for the collection of type specimens and for bringing them to our attention. Mr K. Graham of New South Wales State Fisheries collected three paratypes and kindly donated colour photographs of fresh specimens. We also thank Drs J.R. Paxton and D.F. Hoese of AMS for the loan of paratypes. Finally, we thank Mrs J. Paniperis of WAM for her careful preparation of the typescript.

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