

Antennarius avalonis (Antennariidae, Lophiiformes) in the southeast Pacific

Antennarius avalonis (Antennariidae, Lophiiformes) en el Pacífico suroriental

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Abstract.- Specimens of *Antennarius avalonis* captured in the north of Chile are described. The information is compared with the data presented by previous authors. The distribution of the southeast Pacific species and those known from the continental and insular coasts of Chile is compared.

Key words: First record, roughjaw frogfish, Chile

INTRODUCTION

The genus *Antennarius* Daudin, 1816 is represented in the eastern South Pacific by *A. avalonis* distributed from southern California to Perú (Hildebrand 1946, Pietsch & Grobecker 1987, Chirichigno & Vélez 1998, Chirichigno & Cornejo 2001), including Galápagos Islands (Acero & Garzón 1990) and Coco Island (Robertson & Allen 2002, Mejía-Ladino *et al.* 2007). *A. coccineus* (Cuvier, 1831) reported in Costa Rica, Panamá and Chile; and Clipperton, Cocos, San Félix and Galápagos Islands (Smith & Heemstra 1986, Pietsch & Grobecker 1987, Acero & Garzón 1990, Mejía-Ladino *et al.* 2007), *A. randalli* Allen, 1970 from Pascua and Fiji Islands and Philipines (Pietsch & Grobecker 1987), *Antennarius sanguineus* Gill, 1863 a tropical Pacific species (Schultz 1957, Pietsch & Grobecker 1987) distributed from the Gulf of California to Callao (Hildebrand 1946), Galápagos and San Félix Islands (Acero & Garzón 1990, Mejía-Ladino *et al.* 2007). The present report of *A. avalonis* is the first for the northern continental coast of Chile, extending its distribution range to 20°12'S.

MATERIAL AND METHODS

The nomenclature, meristics and morphometry used was based on Dahl (1971), Pietsch (1984), Pietsch & Grobecker (1987), Robins & Ray (1986), Acero & Garzón (1990), Schneider & Lavenberg (1995), McEachran & Fechhelm (1998) and Mejía-Ladino *et al.* (2007). The taxonomic aspects follow to Schultz (1957, 1964), Dahl (1971), Pietsch & Grobecker (1987), Acero & Garzón (1990), Cervigón (1991), Böhlke & Chaplin (1993) and McEachran & Fechhelm (1998).

Because of the particular morphology of the antennariids, differences in the measuring manner utilized by different authors may be observed. Allen (1970) considers the head length as the distance between the snout tip and the branchial aperture at the level of the base of the pectoral fin. Hildebrand (1946) considers for the same measurement the distance between snout tip and the posterior margin of the opercle and the taxonomic revision of Mejía-Ladino *et al.* (2007) does not consider the length of head at all.

The measurements as well as the abbreviations of the present specimens follow Mejía-Ladino *et al.* (2007). The head length follows Allen (1970). For the ray counts of fins the following abbreviations were used: ACD caudal, AD2 dorsal (soft), AP1 pectoral y AA anal fin (Table 2). The rays of the pectoral fins (AP2) were not counted because they are standard (n=5) for the genus, but the bifurcation of the rays represents an important diagnostic character for its species.

The following measurements were taken: TL total length; SL standard length; LC length of the head; LIL length of the illicium; LEC length of the esca; LED2 length of the second dorsal spine; LED3 length of the third dorsal spine; DO eye diameter; DI interorbital distance; LAP1 length of the pectoral fin; LAP2 length of the pelvic fin; LPD predorsal length, from up to the first dorsal spine; LPD2 predorsal length from up to the first soft dorsal ray; LPA preanal length; DRC distance from to anus; APC height of the caudal peduncle; LPC length of the caudal peduncle; LMI length of the lower jaw; LAD length of the

dorsal fin; LAA length of the anal fin; LR length of the rostrum; LPM length of the premaxillae and; AC1 height of the head and AC2 height of the body.

***Antennarius avalonis* JORDAN & STARKS, 1907**

Material: Two specimens (264 and 193 mm TL), collected in a rocky shore sublittoral area at Iquique: northern Chile (20°12'S), 15.02.2000, respectively deposited under numbers MUAP(P)-0900 and MUAP(P)-0901 in the Zoological Collection of the Departamento de Ciencias del Mar of the Universidad Arturo Prat of Iquique, Chile.

Diagnosis: LEC more or less equal or slightly shorter than LED2. ED2 fused to the head by a reduced membrane that separates two smooth and slightly concave lateral areas (Robertson & Allen 2002, Mejía-Ladino *et al.* 2007). LEC never over 40% of LIL (Pietsch & Grobecker 1987, Mejía-Ladino *et al.* 2007).

Description: Measurements and meristic data of both studied specimens are presented in the Tables 1 and 2, with the following outstanding details: Second dorsal fin rays 12-13, anal rays 8, pectoral branched rays 13. Big head, short, LC 1.9-1.7 in SL, higher than long, LC contained 1.1 in AC1. Caudal peduncle long and slender, LPC 6.1-6.5 in SL and APC 3.8-3.9 in LC. Lower jaw not outstanding 1.8-1.9 in LC. Maxillary wide, its length 2.1-2.5 in LC; Teeth small on both jaws, vomer and palatines in narrow bands. Nasal sacs very conspicuous and small, the anterior ones

opened in a short nasal tube. Gill openings short and located under the base of the pectoral fins. The lateral line starts behind and slightly over the eyes and then curves down in direction to the base of the anal fin, at the level of the second dorsal spine. Pores very distinct (Fig. 1). The here studied specimens show 21-23 pores between the eyes and the caudal fin base. The spines of the first dorsal fin are clearly separated between them and from second dorsal fin. The first dorsal spine is very slender, notably shorter than the second (66-76%), inserted behind the maxillary groove, and with a simple esca composed by a series of short, vertically arranged appendages (Fig. 2), LEC 2.02-2.58 in LIL. The second dorsal spine is shorter and contained 1.67-1.76 in length of the third dorsal spine. The third dorsal spine is connected to the dorsum by a reduced membrane limiting on both sides a slightly concave and smooth area. LED3 is contained 2.4-2.5 in LC. Margin of the second dorsal fin straight, its longest ray 2.8-3.2 in LC. Anal fin small, its margin concave and its origin at level of the 6th -7th dorsal ray and its length 2.2-2.8 in LC. Pelvic fins small with length contained 3.5-4.4 in LC. Pectoral fins broad, with branched rays, its length 2.3-2.4 in LC. Color of body with brown and black blotches, belly and upper side of pectoral fin with numerous diffuse dark blotches, single fins dark, with irregular brown spots, on the basal part of the dorsal fin a black basidorsal blotch surrounded by a narrow orange ring (Pietsch & Grobecker 1987, Mejía-Ladino *et al.* 2007). On the sides of the body

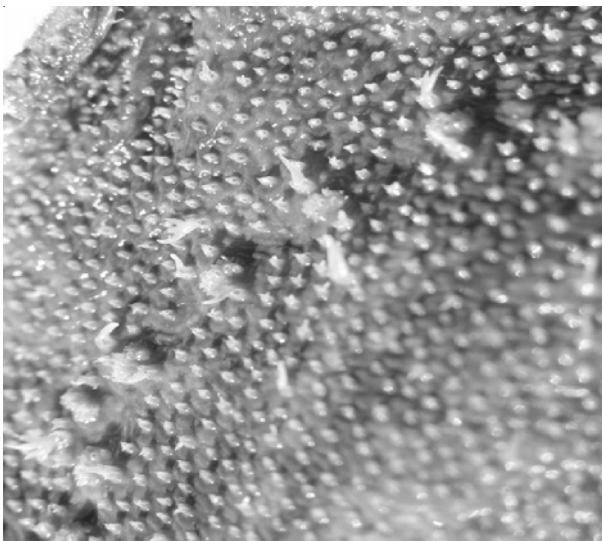


Figure 1. *Antennarius avalonis* perforated scales of the lateral line (MUAP(P)-0901) / Escamas perforadas de la línea lateral (MUAP(P)-0901) de *Antennarius avalonis*

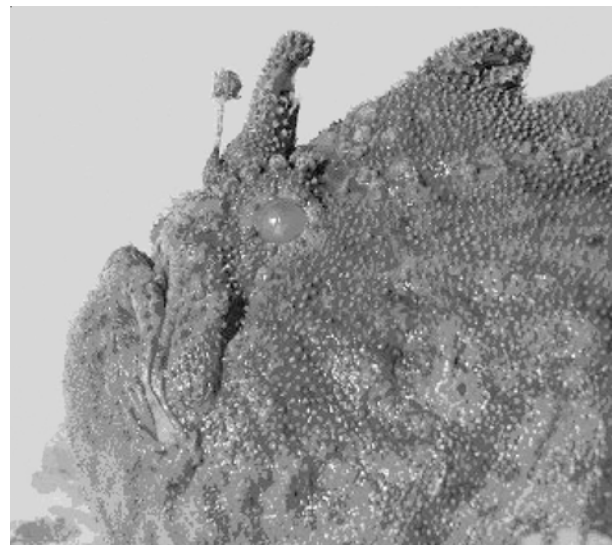


Figure 2. *A. avalonis* esca, illicium and dorsal spines (ED2-ED3) (MUAP(P)-0901) / Esca, illicium y espinas dorsales (ED2-ED3) (MUAP(P)-0901) de *A. avalonis*

Table 1. Measurements of the studied *A. avalonis* specimens (MUAP(P)-0900 and MUAP(P)- 0901). SL: Standard length / Medidas de los especímenes de *A. avalonis* estudiados (MUAP(P)-0900 y MUAP(P)-0901). SL: Longitud estándar

Specimens Measurements	MUAP(P) – 0900		MUAP(P) – 0901	
	mm	%SL	mm	% SL
Standard length	197.0	-	155.0	-
Total length	281.0	-	263.0	-
Height of the head	120.7	61.3	96.9	62.5
Length of the head	108.3	54.9	90.7	58.5
Height of the caudal peduncle	30.2	15.3	23.8	15.4
Length of the caudal peduncle	31.6	16.0	25.3	16.3
Eye diameter	10.5	5.3	7.1	4.6
Distance from snout to anus	138.0	70.0	109.0	70.3
Length of the anal fin	48.8	24.8	32.4	20.9
Length of the dorsal fin	38.8	19.7	28.2	18.2
Length of the pectoral fin	46.6	23.7	37.2	24.0
Length of the pelvic fin	31.3	15.9	20.4	13.2
Length of the illicium	13.7	7.0	10.3	6.7
Length of the esca	5.3	2.7	5.1	3.3
Length of the 1 st dorsal spine	19.0	9.6	15.4	9.9
Length of the 2 nd dorsal spine	25.1	12.7	23.1	14.9
Length of the 3 rd dorsal spine	44.1	22.4	38.5	24.8
Length of the lower jaw	59.4	30.2	49.6	32.0
Length of the premaxillae	51.2	25.9	35.6	23.0
Preal distance	167.0	84.8	121.2	78.2
Predorsal length up to the 1 st spine	8.4	4.3	4.2	2.7
Predorsal length up to the 1 st soft ray	87.0	44.2	73.6	47.5
Length of the rostrum	15.0	7.6	14.1	9.1
Body height	135.8	68.9	109.2	70.5

Table 2. Meristic values of *Antennarius avalonis* / Valores merísticos de *Antennarius avalonis*

Reference	ACD	AD2	Left AP1	Right AP1	AA
Mejía-Ladino <i>et al.</i> (2007)	1-3	11-14	11-13	11-13	7-8
Miller & Lea (1972)		12-14	13	13	8-9
MUAP(P)-0900		13	13	13	8
MUAP(P)-0901		12	13	13	8

two pale blotches in both studied specimens, the inferior most located over the pectoral fin base, both in line with the basidorsal blotch (Fig 3). The size of the blotches is lightly bigger than the eye and its border is diffuse.

Comments: The length of the illicium of the present specimens is shorter than the length of the second dorsal spine, and leads to *A. pauciradiatus* Schultz, 1957 in the species key of Mejía-Ladino *et al.* (2007), but the counts of the pectoral branched fin rays, the absence of appendices in the ED2 and the pocket for the esca, differentiate them from this species.

The assignment of the present specimens to *A. avalonis* is based on the anatomy of the esca, the presence of a basidorsal spot, the meristic data and the pelvic branched rays, and the general morphology of the specimens and their dorsal spines. Length differences of the illicium with

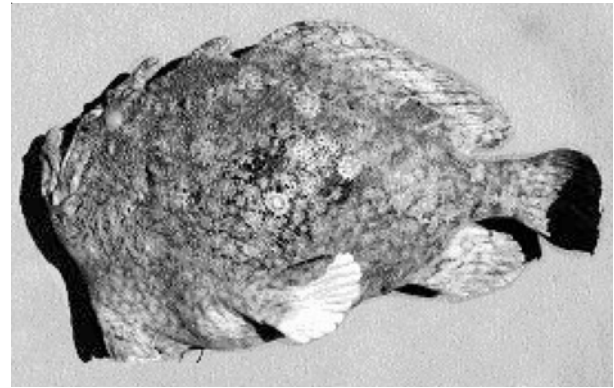


Figure 3. *Antennarius avalonis* specimen MUAP(P)-0900 / Espécimen de *Antennarius avalonis* MUAP(P)-0900

values indicated by Mejía-Ladino *et al.* (2007) may be attributable to the big size of the present specimens, compared with the much smaller individuals of the previous studies (Mejía-Ladino *et al.* 2007).

Distribution: The genus *Antennarius* Daudin, 1816 is represented in the eastern Pacific by *Antennarius commersoni* (Latreille, 1804), *A. avalonis* Jordan & Starks, 1907, *A. sanguineus* Gill, 1863, *A. coccineus* (Cuvier, 1831) and *A. randalli* Allen, 1970 (Hildebrand 1946, Acero & Garzón 1990, Mejía-Ladino *et al.* 2007). In agreement with Mejía-Ladino *et al.* (2007), *A. avalonis* is known for the Eastern Pacific from Isla Santa Catalina in the southern California to Perú (Hildebrand 1946, Pietsch & Grobecker 1987, Chirichigno & Vélez 1998, Chirichigno & Cornejo 2001) including the Galápagos Islands (Acero & Garzón 1990) and the Coco Island (Robertson & Allen 2002). The present new record extends the known distribution range in near 8° to S latitude (12°S-20°12'S) from Perú to Iquique Port (Chile), a probable non permanent southern distribution range, fluctuating in relation with faunistic displacements associated to ENSO events. The present specimens were captured during El Niño (ENSO) 1997/98. Including the new specimens, the genus has four species in Chile.

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