



Additional Data on *Arctozenus australis* Ho et Duhamel, 2019 (Pisces: Aulopiformes, Paralepididae) off Kerguelen Islands

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Abstract

This work clarifies the morphological data for the recently described species *Arctozenus australis* Ho et Duhamel, 2019. Specimens caught in the northwest of the known range of the species confirm the validity of diagnostic characters and expand the known range of the following parameters: predorsal length, prepelvic length, preanal length, distance between origins of dorsal and anal fins, head depth, distance between origins of dorsal and pelvic fins, interorbital width, caudal-peduncle depth, snout length, upper-jaw length, lower jaw, number of caudal vertebrae, preanal vertebrae, and anal fin rays.

Keywords: Morphology; Paralepididae, Southern Ocean; Southern Spotted Barracudina

Abbreviations: A: Anal Fin; D: Dorsal Fin; HL: Head Length; RV: Research Vessel; SL: Standard Length; TL: Total Length; V: Ventral Fin; ZIN: Zoological Institute of the Russian Academy of Sciences.

Introduction

When checking the ZIN collection, the author found several specimens of *Arctozenus* caught on the shelf of the Kerguelen Archipelago in the Southern Ocean, identified as *Arctozenus risso* confer (Bonaparte, 1840). Upon closer examination, the fish were identified as the recently described species *Arctozenus australis* Ho, et al. [1]. This article is intended to slightly alleviate the lack of published data on this species, known so far only from the Kerguelen shelf.

Now, only the above two species are known to belong to the genus *Arctozenus* Gill, 1864, although there is information that *Arctozenus risso* may consist of two cryptic species from

different oceans, the Pacific and Atlantic [2].

Materials and Methods

Examined material: ZIN 56771, 6 specimens SL 258–278 mm, NW off Kerguelen 46°52'S-67°53'E, RV Skif, cruise 3, trawl No. 110, station 1069/158, depth 340–354 m, 02 Jan. 1971 3:00 – 5:30 AM, collector A.F. Pushkin.

Measurements follow Ho et Duhamel [1].

The counting of the predorsal and preanal vertebrae was carried out to the first rays of the fin, and not to the corresponding *pterygiophores*, which are located 1–3 and 4–6 vertebrae rostrally, respectively (Figure 1). The caudal fin formula is written as upper procurrent rays + principal rays + lower procurrent rays. Isobaths are drawn Figure 2 according to the General Bathymetric Chart of the Oceans (GEBCO), Mercator projection [3].

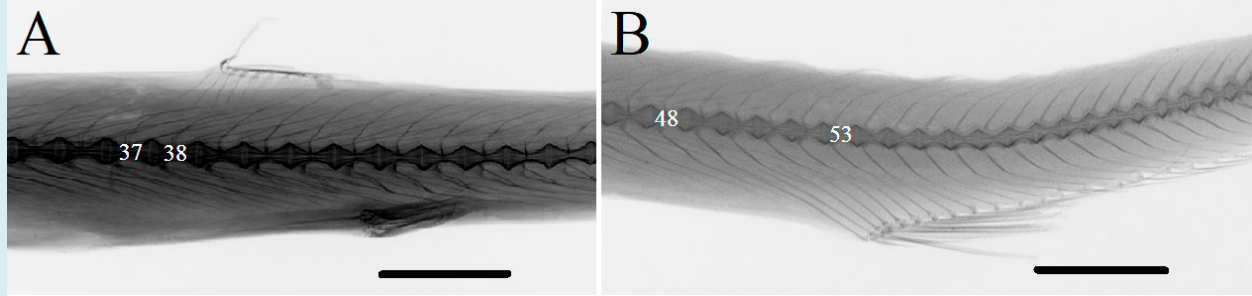


Figure 1: Roentgenogram *Arctozenus australis* ZIN 56771-1, A – dorsal and ventral fins area, B – anal fin. Scale bar 10 mm.

Results and Discussion

Fish have been identified as *Arctozenus australis* according to the description in Ho and Duhamel [1]. Anterior lateral-line scales long; origin of pelvic fin slightly behind dorsal-fin base (Figure 1A); body depth 5.7–6.3 %SL (Table 1); a slender head, its depth at middle of eye 4.1–4.5 in HL; the ratio of snout length/eye diameter 3.3–3.6. Some questions remain about the presence of teeth in adult *Alepisauroids* [1,4,5] so it is important to mention that all examined specimens have well-developed teeth on the jaws.

Ho, et al. [1] examined a similar size group when describing *A. australis*, so the data presented here should not be considered a manifestation of allometry. Limit values for predorsal length, prepelvic length, preanal length, D–A, head depth have shifted upwards compared to the original description; D–V values have expanded in both directions; interorbital width, caudal-peduncle depth, snout length, upper-jaw length, and lower jaw (in % HL) expanded downwards. Of the counting parameters, in two cases a smaller number of caudal vertebrae and in one case a greater number of preanal vertebrae were noted, the same fish had a reduced number of anal fin rays (Table 2).

	56771-1	56771-2	56771-3	56771-4	56771-5	56771-6	N=13*
TL (mm)	295,0	285,0	276,0	-	276,0	276,0	-
SL (mm)	278,0	268,0	262,0	274,0	258,0	259,0	257–291
% SL							
Head length	23,3	22,6	22,9	22,4	22,8	22,2	22.6 (21.6–23.8)
Body depth	5,7	6,3		6,3	6,3	6,2	6.2 (5.2–7.3)
Predorsal length	67,3	66,8	67,2	66,4	66,7	66,8	66.5 (65.5–67.0)
Prepelvic length	70,9	70,9	71,4	71,5	72,5	70,7	70.7 (69.8–72.2)
Preanal length	82,7	83,2	83,6	82,8	84,1	83,0	82.0 (81.1–82.8)
D–V	3,9	3,7	4,3	-	5,3	3,5	4.2 (3.7–5.2)
D–A	15,2	16,3	16,9	16,1	16,6	15,4	15.6 (14.5–16.5)
Head depth	5,4	5,2	5,3	5,2	5,1	5,4	4.9 (4.4–5.2)
Snout length	11,6	11,6	11,9	11,3	11,6	11,0	11.8 (11.3–12.3)
Eye diameter	3,3	3,4	3,4	3,1	3,5	3,3	3.3 (3.1–3.8)
Interorbital width	1,8	1,8	2,0	1,9	1,9	2,0	2.0 (1.9–2.1)
Upper-jaw length	9,6	9,3	9,4	9,0	9,0	8,8	9.4 (8.9–9.7)
Lower-jaw length	12,8	12,7	13,1	13,0	13,1	12,8	13.1 (12.7–13.7)

Table 1: Morphometric data of examined *Arctozenus australis* specimens and of *Ho and Duhamel [1] material. Data in bold is slightly outside the original description. Continued on next page.

	56771-1	56771-2	56771-3	56771-4	56771-5	56771-6	N=13*
Pectoral-fin length	7,2	7,6	7,7	6,9	7,3	5,9	7.2 (5.3–7.9)
Caudal-peduncle depth	1,7	1,8	1,8	1,6	1,9	1,8	1.8 (1.7–1.9)
Caudal-peduncle length	2,8	2,9	3,0	2,8	2,8	2,8	3.2 (2.9–3.5)
Anal-fin-base length	15,7	14,0	13,9	14,4	-	15,0	15.0 (13.1–15.8)
% HL							
Head depth	23,0	23,0	23,0	23,3	22,4	24,4	21.7 (19.6–23.4)
Snout	49,6	51,4	52,0	50,5	51,0	49,5	52.3 (50.7–55.2)
Eye	14,2	15,2	14,7	14,0	15,5	15,0	14.6 (13.7–15.5)
Interorbital	7,9	7,9	8,8	8,3	8,3	8,9	8.9 (8.4–9.4)
Upper jaw	41,3	41,2	41,2	40,2	39,5	39,5	41.3 (39.9–43.5)
Lower jaw	54,7	56,2	57,3	57,8	57,7	57,7	58.1 (56.3–61.6)
Pectoral fin	31,0	33,7	33,5	30,8	32,0	26,8	32.1 (23.2–36.6)

Table 1 (Continuation): Morphometric data of examined *Arctozenus australis* specimens and of *Ho and Duhamel [1] material. Data in bold is slightly outside the original description.

	56771-1	56771-2	56771-3	56771-4	56771-5	56771-6
Vertebrae						
Prehaemal	39	40	40	40	40	40
Caudal	44	41	40	41	40	41
Predorsal	38	37	37	37	36	38
Prepelvic	40	40	40	42	40	41
Preanal	53	55	51	52	52	53
Total	83	81	80	81	80	81
Fin rays						
Dorsal	9	9	9	9	9	9
Anal	31	29	30	30	30	31
Caudal	13+19+12=44	13+19+12=44	14+19+12=45	12+19+11=42	14+19+12=45	12+19+11=42

Table 2: Meristic data of examined *Arctozenus australis* specimens. Data in bold is slightly outside the original description.

The presented data do not contradict the data of Ho and Duhamel but expand the known parameter values of the species. Despite the shifted limit of the head height values towards *A. risso*, the head height in *A. australis* is still notably slender (19.6–24.4 vs 24.5–28.9 of *A. risso* [1]). Location

and conditions of capture correspond well to previously published data (Figure 2). There is no doubt that *A. australis* can be caught all around the Kerguelen Archipelago on the continental slope.

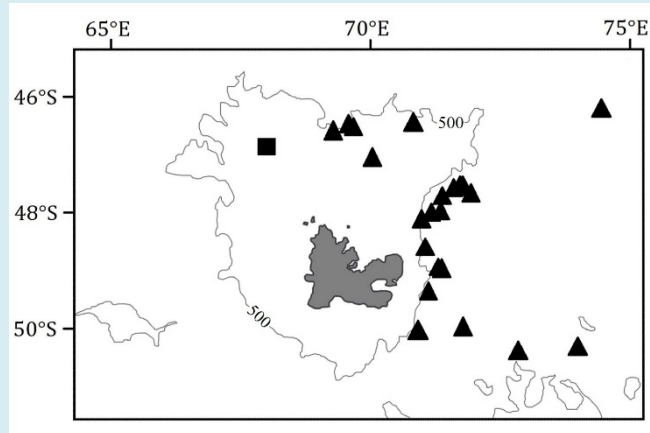


Figure 2: Kerguelen Archipelago. Distribution map of *Arctozenus australis*, ■ - ZIN 56771, ▲ - data from Ho and Duhamel [1].

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References

1. Ho H-C, Duhamel G (2019) A new species of the fish genus *Arctozenus* from the Kerguelen Islands, with comments on the lost teeth in adults (Aulopiformes: Paralepididae). *Zootaxa* 4651(3): 497-512.
2. Kenchington EL, Baille SM, Kenchington TJ, Bentzen P (2017) Barcoding Atlantic Canada’s mesopelagic and upper bathypelagic marine fishes. *PLoS ONE* 12(9): e0185173.
3. GEBCO World Map (2014) Global ocean & land terrain models. Gridded Bathymetry Data.
4. Franz GP, Warth P, Grunow B, Konstantinidis P (2022) Osteology of the White Barracudina, *Arctozenus risso* (Bonaparte) (Aulopiformes: Paralepididae). *Ichthyology & Herpetology* 110(1): 115-130.
5. Post A (1987) Results of the research cruises of FRV “Walther Herwig” to South America. LXVII. Revision of the subfamily Paralepidinae (Pisces, Aulopiformes, Alepisauroidae, Paralepididae). I Taxonomy, morphology and geographical distribution. *Fischereiwissenschaft* 38: 75-131.

