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NOTE

First record of the deep-sea caridean shrimp *Notostomus auriculatus* Barnard, 1950 (Crustacea: Decapoda: Acanthephyridae) in the southwestern Atlantic Ocean

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ABSTRACT. The present work reports the occurrence of the deep-sea Caridea, *Notostomus auriculatus* Barnard, 1950 which represents the first record for the southwestern Atlantic Ocean. Organisms were caught during a fishing operation onboard the FV 'Echizen Maru' with a bottom trawl at the southeast of Isla de los Estados, Argentina, between 780 and 1,040 m depth. This record extends the spatial distribution of *N. auriculatus*.

Key words: Deep-sea crustacean, new distributional record.

Primer registro del camarón carideo de profundidad *Notostomus auriculatus* Barnard, 1950 (Crustacea: Decapoda: Acanthephyridae) en el Atlántico Sudoccidental

RESUMEN. El presente estudio tiene como objetivo informar sobre la presencia del carideído de aguas profundas *Notostomus auriculatus* Barnard, 1950, lo que representa el primer registro en el Océano Atlántico Sudoccidental. El espécimen fue capturado durante una operación pesquera a bordo del FV "Echizen Maru", equipado con una red de arrastre de fondo, en el área sudeste de la Isla de los Estados, Argentina, a profundidades comprendidas entre 780 y 1.040 m. Este registro amplía la distribución espacial de *N. auriculatus*.

Palabras clave: Camarón de aguas profundas, nuevo registro de distribución.

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The Caridea Dana, 1852, is one of the best represented infraorders of crustacea around the world, with just over 3400 species in 389 genera (De Grave and Fransen 2011). Among decapod crustaceans, this infraorder, groups shrimps and prawns, which are important organisms due to their trophic relevance as predator and prey, nutrient recycling and habitat maintenance. There are important fisheries based on carideans such as *Pandalus borealis* Krøyer, 1838, *Crangon crangon* Linnaeus, 1758 and *Macrobrachium rosenbergii* De Man, 1879 (Holthuis 1980; Briones-Fourzán and Hendrickx 2022). The Acanthephyridae Spence Bate, 1888 family, was first defined by Bate, C. S. (1888) and presently includes 16 genera and 133 species (De Grave and Fransen 2011; WoRMS 2025). Spivak et al. (2019) reviewed 42 Caridea species in the Argentina and Uruguay southwestern Atlantic. However, they only describe the presence of

two species of the family Acanthephyridae Spence Bate, 1888, *Acanthephyra pelagica* (Risso, 1816) and *Acanthephyra quadrispinosa* Kemp, 1939. Three genera with six species of deep-sea Acanthephyridae Spence Bate, 1888 have been described in the southwestern Brazil. There is only one species in the list of the genus *Notostomus*, *N. elegans* A. Milne Edwards, 1881 (Cardoso and Young 2005; Cardoso and Serejo 2007). Del Río et al. (2008) documented the capture of an individual belonging to the genus *Notostomus* sp. beyond the Argentine Exclusive Economic Zone; however, they did not provide a detailed account of the specific location or depth of capture, nor did they offer a comprehensive description of the specimen.

Here we report the finding of *Notostamus auriculatus* Barnard, 1950 caught in a commercial fishing operation carried out by the FV 'Echizen Maru' at the southeast of Isla de los Estados, Argentina.

Taxonomy

Order Decapoda Latreille, 1802
Infraorder Caridea Dana, 1852
Superfamily Oplophoridae Dana, 1852
Family Acanthephyridae, Spence Bate, 1888
Genus *Notostomus* A. Milne Edwards, 1881
Notostomus auriculatus Barnard, 1950

Synonymy

Notostomus westergreni Stebbing, 1905, p. 110 (no Faxon, 1893).
Notostomus westergreni Stebbing, 1910, p. 395 (no Faxon, 1893).
Notostomus auriculatus Barnard, 1950, p. 670, fig. 124 h-i.
Notostomus longirostris Balss, 1925, p. 268 (no Bate, 1888).
? *Notostomus* sp. Holthuis and Sivertsen, 1967, p. 32, figs. 4, 5.
Notostomus westergreni Kensley, 1968, p. 310 (partly, no Faxon, 1893).
Notostomus auriculatus Crosnier and Forest, 1973, p. 52, fig. 14, 16c (= *N. crosnieri* Macpherson, 1984).

Material examined

One specimen was captured onboard the FV 'Echizen Maru' on June 3, 2024 during a fishing operation devoted to the fishing of *Dissostichus eleginoides* Smitt, 1898, with a bottom trawl, at the southeast of Isla de los Estados, the initial position was 54° 47′ 3″ S, 62° 57′ 6″ W and a the final position 54° 47′ 7″ S, 63° 9′ 0″ W, between 1,040 and 780 m depth (Figure 1 –INIDEP Crustacean collection number 2012). Another badly specimen was also recorded from a gut content of a *Dissostichus eleginoides* captured during the same fishing haul.

Diagnosis

Carapace globular, dorsally blade-like and slightly convex, covered with small spines. Towards the front, the carina is clearly visible and extends nearly to the tip of the rostrum. However, this can only be confirmed in the holotype described by Macpherson (1984), as the terminal portion is deteriorated in the specimens examined here. A series of distinct carinae are present: rostral-lateral-superior (extending from rostrum base to anterior fifth of carapace), rostral-lateral-inferior (originating above the orbit), gastro-orbital (originating posterior to orbit), infra-gastro-orbital, subhepatic, post-hepatic, infra-subhepatic, and submarginal carinae. Posterior carapace roughened, especially between infra-gastro-orbital and subhepatic carinae. Abdominal segments dorsally carinate; segment I with a posterior notch, segments III-VI each bearing a well-developed posterior spine. Pleurons of segments III-V with oblique anteroinferior carinae; segment V posterior-inferior margin forming a right angle with a terminal spine. Telson equal in length to uropods, approximately twice the length of abdominal segment VI, armed with five pairs of dorsolateral spines (Figure 1).

According to Crosnier and Forest (1973) adults of *Notosotumus auriculatus*, Barnard, 1950 are

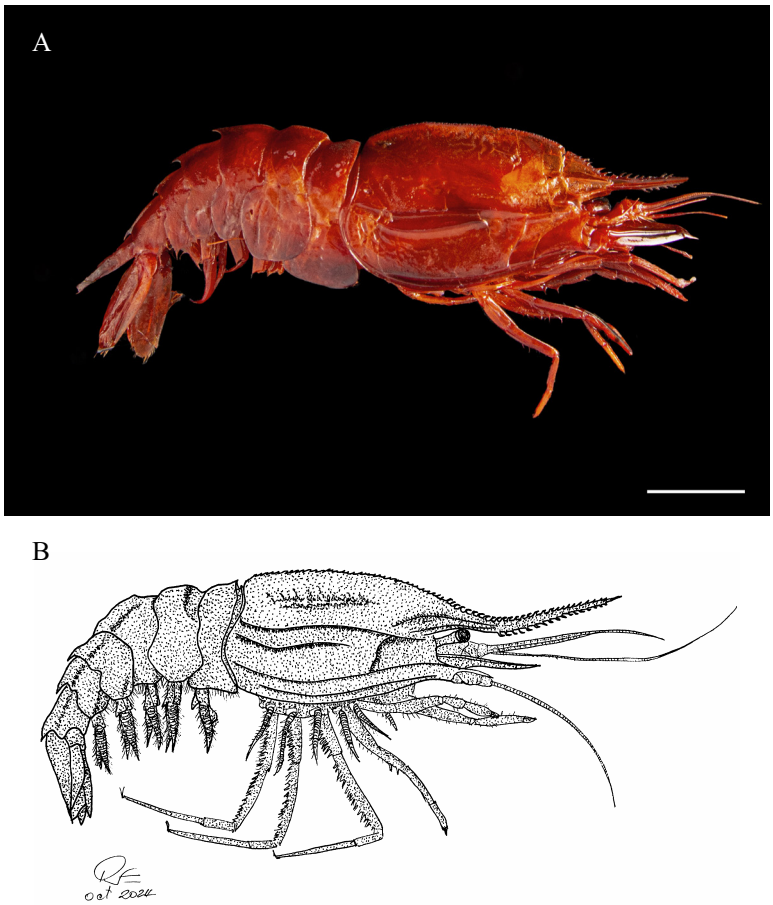

Figure 1. A) Found specimen of *Notostomus auriculatus* Barnard, 1950, lateral view. Scale bar = 2 cm. B) Drawing of *Notostomus auriculatus* Barnard, 1950 (with permission from Rodolfo Elías).

usually recorded in the eastern Atlantic at depths greater than 725 m while they also reported a juvenile collected at 600 m. Macpherson (1984) reported specimens collected from the Valdivia Bank (24° S to 26° S, 5° E to 6° E) at depths of 900 m, and from the Namibian coast at 820 m. Barnard (1950) describes a specimen captured at 1,400 m off Cape Point, SA. Individuals of *N. auriculatus* reported in the Pacific have been located at depths ranging from surface to deeper than 1,200 m (Webber et al. 1990). Although they are deep-sea crustaceans, there are records of specimens found in the stomachs of albatrosses caught in the islands of New Amsterdam (Indian Ocean) and Tristán da Cunha (South Atlantic). This suggests that the strong deep water upwelling in these areas is transporting *N. auriculatus*, Barnard, 1950 individuals close to the surface (Crosnier and Forest 1973). In addition to the areas mentioned above, *N. auriculatus*, Barnard, 1950 is also distributed around Australia, New Zealand and South Pacific islands (Richardson and Yaldwin 1958; Webber et al. 1990).

This species of shrimp is a deep-sea pelagic shrimp, and it may be closely linked to the physical and chemical properties of intermediate water masses, particularly the Antarctic Intermediate Water (AAIW).

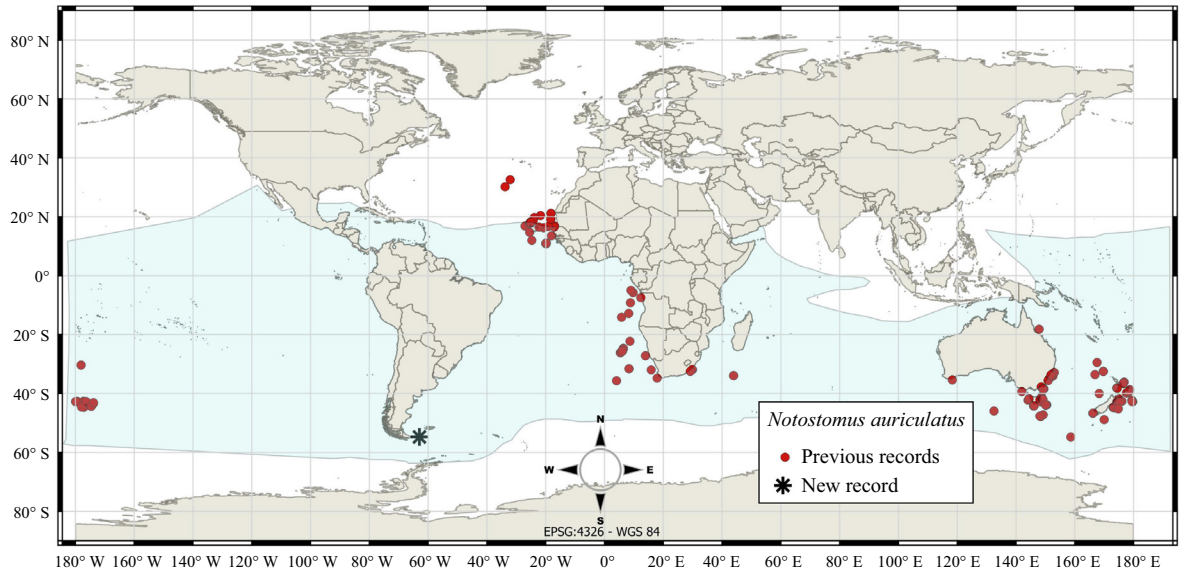

Figure 2. Geographic distribution of *Notostomus auriculatus* Barnard, 1950 (GBIF 2025, OBIS 2025). The distribution of Antarctic Intermediate Water (AAIW) is represented by the light blue area of the graph (modify from Hanawa and Talley 2001).

The Antarctic Intermediate Water (AAIW) is the low-salinity intermediate-depth layer of the southern hemisphere, and it is very closely associated with the Subantarctic Mode Water (SAMW) (Hanawa and Talley 2001). Both are the dominant mid-depth (500-1,000 m) water masses in oceans from the southern hemisphere. They play a vital role in Earth's climate system due to their importance in affecting the global-scale oceanic transport of carbon, heat, and salt (Li et al. 2022). Judkins (2023) demonstrated that geographic ranges of pelagic decapod shrimp species in the world's oceans are influenced by surface current systems and water masses. Patterns in geographical distribution associated with circulation, temperature, nutrient levels, and primary production are observed to recur across numerous pelagic taxa. Nevertheless, a considerable degree of variability is evident within the various faunal groups. Consequently, it is imperative to acknowledge the distinctiveness of each species' range. The historical distribution of *Notostomus auriculatus* Barnard, 1950, combined with that of this new report and the AAIW distribution (modified from Hanawa and Talley 2001) (Figure 2), reveals substantial overlap between the AAIW and the geographic spread of *N. auriculatus*, Barnard, 1950.

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Author contributions

Juan L. de la Garza González: conceptualization; specimen identification; writing-review and editing. Cecilia Ravalli: visualization and photograph. Eduardo E. Aguilar: obtaining and preserving the specimen onboard.

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