



ORIGINAL ARTICLE

***Penilpidia desbarresi* sp. nov. (Echinodermata: Holothuroidea: Elaspodida) from the upper slope of Newfoundland and re-description of *P. ludwigi* (von Marenzeller, 1893)**

ANDREY V. GEBRUK<sup>1\*</sup>, ANTONINA V. ROGACHEVA<sup>1</sup>, DAVID L. PAWSON<sup>2</sup>,  
JEAN-FRANÇOIS HAMEL<sup>3</sup>, KEVIN G. MACISAAC<sup>4</sup> & ANNIE MERCIER<sup>5</sup>

<sup>1</sup>P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow, Russia, <sup>2</sup>National Museum of Natural History, Smithsonian Institution, Washington, DC, USA, <sup>3</sup>Society for the Exploration and Valuing of the Environment (SEVE), Portugal Cove-St. Philips, Newfoundland and Labrador, Canada, <sup>4</sup>Bedford Institute of Oceanography, Department of Fisheries and Oceans, Dartmouth, Nova Scotia, Canada, and <sup>5</sup>Ocean Sciences Centre (OSC), Memorial University, St. John's, Newfoundland and Labrador, Canada

**Abstract**

*Penilpidia desbarresi* sp. nov. was collected in the Desbarres Canyon at a depth of 525 m, off the southeastern coast of insular Newfoundland, eastern Canada. The new species differs from the type species *Penilpidia ludwigi* (von Marenzeller, 1893) in having larger middle spines on arched rod-type ossicles on the dorsum and by having the lobe around the posterior body end formed by six pairs of very small tube feet. *Penilpidia desbarresi* sp. nov. was photographed *in situ* and sampled on a single occasion in July 2007. This gonochoric species (~1–2 cm long) was found on a muddy substrate and individuals were aggregated, reaching a density of ~50 ind. m<sup>-2</sup>. Preliminary evidence points to brooding, which would be a first for the family Elpidiidae. *Penilpidia ludwigi*, not recorded for more than 100 years after its first description, is re-described.

**Key words:** *Penilpidia*, *elpidiid holothurians*, *deep sea*, *upper slope*, *submarine canyons*, *reproduction*, *Canada*, *Newfoundland*

**Introduction**

Holothurians of the family Elpidiidae are one of the most common taxa on the lower continental slope and the abyssal plain; only few elpidiids play a significant ecological role at upper and mid slope depths (Hansen 1975; Gebruk 1990; Billett 1991). Among them is the genus *Penilpidia*, which was established by Gebruk (1988) to accommodate the species *Penilpidia ludwigi* (von Marenzeller, 1893) and *Penilpidia pacifica* Gebruk, 1988. The type species of the genus was originally described by von Marenzeller as *Kolga ludwigi* based on several specimens collected by the *Pola* expedition in 1891 at three stations north and northwest of Crete at depths of 755–1292 m. The type of ossicles and arrangement of dorsal papillae in this species are unusual for elpidiid holothurians and as a result the

generic assignment of the species remained problematic: Hérouard (1923) transferred the species from *Kolga* to *Periamma*, Hansen (1975) assigned it to *Irpa*. The species *P. ludwigi* was not recorded for more than 100 years after its first description. It was rediscovered in 1993 in the eastern Mediterranean by the *Meteor 25* expedition (Fiege & Liao 1996).

In the North Atlantic, deep-sea holothurians have received considerable attention. However, most species records come from the northeast Atlantic (e.g. Hansen 1975; Gebruk 1990; Billett 1991; Madsen & Hansen 1994) and from the Mid-Atlantic Ridge (Gebruk 2008). A limited number of works are relevant to the Atlantic seaboard of Canada with about 25 genera and 30 species known for the region (Deichmann 1930; Pawson 1977; Gage et al. 1985). In general, the holothurian fauna at upper bathyal depths (200–2000 m) is poorly known throughout

\*Correspondence: Andrey V. Gebruk, P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Nakhimovskiy Pr., 36, Moscow 117997 Russia. E-mail: [agebruk@ocean.ru](mailto:agebruk@ocean.ru)

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