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Description of two ubiquitous species of Desmosomatidae (Isopoda: Asellota) from the Northwest Pacific Basin east of the Kuril-Kamchatka Trench

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Abstract

Two new species of Desmosomatidae, *Eugerdella kurabyssalis* **sp. nov.** and *Parvochelus serricaudis* **sp. nov.**, are described from the Northwest Pacific open abyssal plain to the east of the Kuril-Kamchatka Trench. These species constituted about one fourth of all collected desmosomatid specimens of the KuramBio expedition (2012), indicating it may be the most abundant species of the family in this area. *E. kurabyssalis* **sp. nov.** is rather similar to *E. minutula* Mezhov, 1986 and *E. theodori* Brix, 2007, resembling them in the shape of its body segments and appendages, including the absence of the mandibular palp and morphology of the pereopod I. The new species can be distinguished from the mentioned species by the number of cusps of the mandibular incisor process and lacinia mobilis, the relatively stouter pereopods and different setation of the pereopod I ischium. *P. serricaudis* **sp. nov.** is the second species of the genus *Parvochelus* Brix & Kihara, 2015 (see Brix *et al.* 2015) and the first record of the genus from the Pacific Ocean and from the Northern Hemisphere. *P. serricaudis* **sp. nov.** can be distinguished from *P. russus* Brix & Kihara, 2015 by its relatively stouter pereopod I, presence of the mandibular palp and the shape of the maxilliped palp articles and female operculum. A discussion of the taxonomic characters and the modified diagnosis of the genus *Parvochelus* are presented.

Key words: *Eugerdella*, *Parvochelus*, abyssal, deep sea, taxonomy, new species

Introduction

The isopod family Desmosomatidae has a global distribution, occurring at depths ranging from 4 to 6700 m (Kussakin 1999; Schotte *et al.* 1995). Their maximal diversity and abundance are found at bathyal and abyssal depths, as well as in the shelf zones in the cold-water regions of both hemispheres (Brix & Svavarsson 2010; Choudury & Brandt 2007; Hessler 1970; Kussakin 1999; Schotte *et al.* 1995; Stransky & Svavarsson 2010; Svavarsson *et al.* 1993). In most deep-sea basins that have been studied with the appropriate gear for sampling macrobenthos, Desmosomatidae were found to be a common group and the second richest and abundant isopod family after Munnopsidae (Brandt *et al.* 2004, 2005, 2007; Brenke *et al.* 2005; Brix 2007; Brix & Svavarsson 2010; Golovan *et al.* 2013; Elsner *et al.* 2015; Kussakin 1965, 1999; Lörz *et al.* 2013; Malyutina & Kussakin 1996; Svavarsson *et al.* 1990).

More than 140 species in 17 genera of the family have now been described (Brix *et al.* 2015; Schotte *et al.* 1995). In addition, the findings of several dozen of new species pending description (or new species that cannot be described due to the poor condition of the specimens) have been reported (e.g., Brix 2006, 2007; Brix & Bruce 2008; Golovan *et al.* 2013; Golovan 2015; Schnurr & Brix 2012; Wetzer *et al.* 1997). The family is thought to have a deep-sea origin, while some of its members have secondarily emerged into the shallow-water zones in the Polar Regions (Raupach *et al.* 2004). Hessler (1970) suggested a cosmopolitan distribution of most desmosomatid genera and considered the lack of findings of the family in some deep-sea basins to be the result of insufficient sampling. Nevertheless, the analysis of the distribution of at least one part of the desmosomatid genera is difficult due to the unequal state of knowledge on different deep-sea regions. Desmosomatidae are small (usually less than 3–4 mm long) and fragile crustaceans, which often cannot be collected or are damaged by types of gear not specifically designed for sampling motile macrobenthos. Most of the currently described desmosomatid species are known