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Redescription of four species of *Spio* and *Microspio* (Polychaeta, Spionidae) from the Kuril Islands and Peter the Great Bay, northwest Pacific

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Abstract

The type material and additional specimens deposited in the collections of the Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, of four poorly known species of *Microspio* and *Spio*, *M. kussakini* Chlebovitsch, 1959, *S. kurilensis* Buzhinskaya, 1990 **comb. nov.**, *S. picta* Zachs, 1933 and *S. unidentata* Chlebovitsch, 1959, were examined. All species occur in intertidal or shallow subtidal areas of the northwest Pacific Ocean. Previously available taxonomic information on these species was from brief original descriptions and very few additional publications. A redescription of these four species is presented including detailed descriptions and illustrations of morphological characters. Comments on the taxonomic status are added. Diagnostic characters of *Microspio* and *Spio* species are discussed.

Key words: dorsal ciliated organs, *Microspio kussakini*, morphology, northwest Pacific Ocean, nuchal organs, Peter the Great Bay, Sea of Okhotsk, *Spio kurilensis* **comb. nov.**, *Spio picta*, *Spio unidentata*, taxonomy

Introduction

From a taxonomist's point of view the genera *Spio* Fabricius, 1785 and *Microspio* Mesnil, 1896 are two genera not easy to distinguish between. First of all, the separation of *Microspio* and *Spio* is a subject of debate (e.g. Söderström 1920, Simon 1967, Foster 1971, Holmquist 1967, Blake and Kudenov 1978, Maciolek 1990, Blake 1996 and Sikorski 2001). For example, Blake (1996) and Maciolek (1990) have constituted this separation mainly based on the presence of branchiae on the first chaetiger in *Spio* and their absence in *Microspio* species. On the other hand, Söderström (1920) separates both genera based on the number of ciliary bands constituting the metameric dorsal ciliated organs. According to Söderström´s diagnosis two bands are found in *Microspio* and four bands in *Spio*. The same author states that the length of branchiae on first chaetiger cannot be regarded as a character important enough to include in the generic diagnosis since intermediate conditions of the branchial length had been observed in different species. Also Sikorski (2001) doubts the usefulness of branchial length on first chaetiger as a diagnostic character for the two genera with reference to the considerable variability of the length of branchiae in the first chaetigers in *Spio* species. An example of a *Spio* species with very small first branchiae is e.g. *S. theeli* (Söderström, 1920), a species that has been assigned to *Spio* or *Microspio* (see WoRMS, www.marinespecies.org). Complicating this discussion are findings by Simon (1967), who observed a delayed development of branchiae on the first chaetiger in *S. setosa* Verrill, 1873. Such a delayed development of anterior branchiae is also found for *S. goniocephala* Thulin, 1957 (Bick *et al.* 2010). Interestingly, only two bands constitute the metameric ciliated organs in *S. goniocephala* (Bick *et al.* 2010), as proposed for *Microspio* by Söderström (1920).

The two genera comprise quite a large number of morphologically similar species. The last review of the two taxa by Maciolek (1990) listed 74 species (either originally described in or assigned to *Spio* or *Microspio*). After reviewing the literature and the study of type material of 18 species the author accepted 25 species as valid in *Spio* and 15 species as valid in *Microspio* (Maciolek 1990). Three species were newly described (*S. thulini*, *M. profunda*,

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