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Revision of *Hastatobythites* and *Saccogaster* (Teleostei, Bythitidae) with three new species and a new genus

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Abstract

Material of three similar and probably related genera of the viviparous ophidiiform family, Bythitidae, has been studied. The monotypic *Hastatobythites* is only known from the original two specimens; re-examination of the paratype and information of the holotype clearly demonstrates the validity of the genus. The revision of *Saccogaster* (Cohen & Nielsen 1972) was based on 15 specimens. Since then 29 additional specimens have been collected representing 11 species, three of which are here described: *S. brayae*, *horrida* and *nikoliviae*. Three of the 11 *Saccogaster* species, *S. melanomycter*, *S. normae* and *S. rhampidognatha*, differ so much from the remaining eight that a new genus, *Parasaccogaster*, is described. The main diagnostic characters used for the three genera are: A pair of spines on frontal plate behind eyes, spines on snout, length of gill filaments on anterior arch, number and length of developed gill rakers, size of gill opening, thickness of skin, head pores, otolith morphology, color marks on head, neuromasts on head and head morphometrics, fin ray counts.

Key words: Bythitidae, notes on *Hastatobythites*, revision of *Saccogaster* with three new species, *Parasaccogaster* n. gen.

Introduction

Fishes of the family Bythitidae are widely distributed in all oceans. They are generally near-bottom fishes, occurring benthopelagically in the deeper parts of the oceans and often hidden on the continental rise and in reef or rocky bottom habitats. The secretive mode of life of many of the species of the subfamily Bythitinae results in relatively few catches. Investigations during the last decade as well as ongoing research indicate that bythitins may not really be as rare as long perceived.

A group of genera mostly adapted to rocky bottom environments on the deep shelf and continental rise from about 200 to 800 m comprises the genera *Bellottia* Giglioli, 1883, *Cataetyx* Günther, 1887, *Hastatobythites* Machida, 1997, *Saccogaster* Alcock, 1889, *Tuamotuichthys* Møller, Schwarzhans and Nielsen, 2004a and *Timorichthys* Nielsen and Schwarzhans, 2011. The knowledge of this group is rapidly increasing with more bottom trawls performed on the deep shelf and the continental rises as evidenced by recent publications of Machida (1997), Møller *et al.* (2004b), Nielsen *et al.* (2006, 2009, 2011) and with the three species and one genus described in the following.

The monotypic *Hastatobythites* Machida, 1997 from the Arafura Sea and *Saccogaster* Alcock, 1889 with eight species represent viviparous species occurring benthically with one species on shallow coral reefs and the remainder in deeper water to 834 m. Nielsen *et al.* (1999) classified all nine species as “rare” indicating that none of them was known from more than ten specimens. Recent discoveries have increased the number of *Saccogaster tuberculata* specimens to 18 and the remaining species are known from 1–6 specimens.

Since the revision of *Saccogaster* by Cohen and Nielsen (1972), which was based on 15 specimens, 29 additional *Saccogaster* specimens have been caught representing three new species, which are described in this