



Serpulidae (Annelida, Polychaeta) from Patton-Murray Seamounts, Gulf of Alaska, North Pacific Ocean

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Abstract

A collection of Serpulidae (Annelida, Polychaeta) from the Patton-Murray Seamounts, Gulf of Alaska, USA contained three species *Apomatus voightae* n. sp., *Bathyvermilia eliasoni* n. comb., and *Hyalopomatus bififormis* (Hartman, 1960). *Apomatus voightae* n. sp. differed from all other *Apomatus* spp. and from all known serpulid species by very unusual flat and ribbon-like branchial radioles as well by details of chaetal structure. *Vermiliopsis eliasoni* Zibrowius (1970) previously known from Atlantic and Mediterranean, was transferred to the genus *Bathyvermilia* Zibrowius, 1973. *Hyalopomatus bififormis* is a deep-sea species distributed in the north-eastern Pacific from Alaska to California, USA. All serpulids were described in detail and their chaetal structure elucidated with the help of scanning electron microscopy. Molecular sequence data (18S rDNA) were aligned to a recently published serpulid data set and maximum parsimony analysis was performed to examine the phylogenetic position of the species and confirm their identification. *Hyalopomatus bififormis* formed a sister group with *Laminatubus alvini*, *Apomatus voightae* n. sp. formed a sister group with *Apomatus globifer*, and *Bathyvermilia eliasoni* formed a weakly supported polytomy with *Chitinopoma serrula*, *Protula tubularia* and *Apomatus* spp. We briefly discussed biogeographic affinities of the serpulids from the Patton-Murray Seamounts in the light of seamount ecology and biogeography.

Key words: *Apomatus voightae* n. sp., *Bathyvermilia eliasoni* n. comb., *Hyalopomatus bififormis*, 18S rRNA, morphology, phylogenetic position

Introduction

Seamounts are undersea mountains usually of volcanic origin rising from the bottom of the sea that do not break the water's surface. They are a unique type of deep-sea habitat with varying levels of biodiversity and endemism. Whether they serve as centers of speciation, or "stepping stones" for the dispersal of coastal species (e. g., Koslow 1997; Koslow & Howlett-Holmes 1998; De Forges *et al.* 2000) requires improved knowledge of the fauna.

Although seamounts are present in all oceans, their fauna was largely overlooked until the 1960s, when their potential as fishing grounds was first realized (Keating *et al.* 1987, Rogers 1994). In recent years studies of deep-sea organisms associated with seamounts have become increasingly important with growing concerns of over-exploitation and habitat disturbance (Hoff & Stevens 2005). Knowledge of the faunal community composition, community structure, as well as habitat availability and associations can provide the basis for greater understanding of seamount ecosystems. A recently conducted global review of seamount data (Stocks 2009) aimed to describe the seamount invertebrate communities and their vulnerability to fishing. The data clearly indicate that seamount communities differ from those in other deep-sea habitats. Sessile filter-feeders such as corals, anemones, sponges, feather-stars dominate on hard-bottomed seamounts, compared to the deposit-feeding species found most often in the muddy deep sea.

Although the majority of polychaetes are deposit-feeders living in soft sediments, members of the family Serpulidae are unusual in being sessile suspension-feeders building calcareous tubes on hard substrates from