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Tanaidomorph Tanaidacea (Crustacea: Peracarida) from Mud-Volcano and Seep Sites on the Norwegian Margin

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Abstract

Recent sampling of the benthos has been undertaken around the Håkon Mosby Mud Volcano (HMMV) at around 1280 m depth on the Norwegian-Barents-Spitsbergen continental margin and at two seep-sites further south on the Norwegian Margin, the Nyegga seep-site and the Storegga Slide, at about 730 m depth. The collected material included eleven species of tanaidomorph tanaidacean, ten of which (from eight genera) are analyzed herein. Four of these species, one each in the genera *Pseudotanais*, *Cryptocopoides*, *Obesutanais*, and *Akanthophoreus*, are new to science. Supplementary descriptions are given for two species originally discovered during the 19th century Ingolf expedition, *Typhlotanais mixtus* and *Meromonakantha irregularis*. The genus *Magotanais* is synonymized with *Cryptocopoides*; the subfamily Akanthophoreinae, Sieg is restricted and raised to family-rank. The evolution of potentially endemic taxa at vent- and seep-sites is discussed.

Key words: Tanaidacea, mud volcanoes, pockmarks, seeps, Barents Sea, deep-sea, *Akanthophoreus*, *Cryptocopoides*, *Meromonakantha*, *Obesutanais*, *Paranarthrurella*, *Pseudotanais*, *Thorkelius*, *Typhlotanais*

Introduction

The Håkon Mosby Mud Volcano (HMMV) lies at around 1280 m depth on the Norwegian-Barents-Spitsbergen continental margin at 72ºN 14°44'E, an area characterized by major submarine slides and smaller sea-floor features. The mud volcano is about 1.5 km in diameter, but rises only up to 10 m above the sea-floor, and is essentially a warm methane-seep with seafloor hydrates and chemosynthesis-based ecosystem, comprising three main habitat-types: bare reducing sediments at the centre, microbial mats and siboglinid fields (e.g. Vogt *et al.* 1997; Van Gaever *et al.* 2010).

Gebruk *et al.* (2003) studied the benthic macrofauna of the Håkon Mosby Mud Volcano in July 1998 using submersibles. They listed a total of 46 species of benthic fauna. The benthic community was dominated by two species of symbiotrophic pogonophores, *Sclerolinum contortum* and *Oligobrachia haakonmosbiensis*. Bacterial mats were found over an extensive part of the crater. The background benthic community was much poorer and dominated by ophiuroids; pycnogonids, buccinid gastropods and asteroids were also present. The only tanaidacean they recorded was *Akanthophoreus gracilis* Krøyer, 1842.

Some 900 km further south on the Norwegian Margin, at about 64°N 05°E, are two further sites of hydrocarbon-seep habitats. The Storegga Slide scar, produced by a series of giant Holocene slope failures, is characterized by sea-floor pockmarks and subsurface chimney structures on its northern side at about 730 m depth. The Nyegga area, located on the northeastern flank of this slide, is characterized by a cluster of complex pockmarks at 740 m water depth; these pockmarks are circular and possess ridges of wide carbonate rocks (Hovland & Svensen 2006; Foucher *et al.* 2009; Van Gaever *et al.* 2010).

Recent sampling of the benthos from these three sites revealed tanaidomorph tanaidacean material, representing eleven species, eight of which are analyzed herein.

Previous records of tanaidomorph tanaidaceans from deep-sea chemosynthetic habitats (cold seeps or hydrothermal vents) were reviewed in Błażewicz-Paszkowycz *et al.* (2011); of only five published studies, two were

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