Zootaxa 3753 (2): 101–117
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

http://dx.doi.org/10.11646/zootaxa.3753.2.1
http://zoobank.org/urn:lsid:zoobank.org:pub:42BA9ED6-75D6-42A2-9D1C-9BAD17B5E9C5

Occurrence and distribution of *Pseudoscalibregma* and *Scalibregma* (Annelida, Scalibregmatidae) in the deep Nordic Seas, with the description of *Scalibregma hanseni* n. sp.

TORKILD BAKKEN[1,4], EIVIND OUG[2] & JON ANDERS KONGSRUD[3]

[1]*Norwegian University of Science and Technology, University Museum, NO-7491 Trondheim, Norway*
[2]*Norwegian Institute for Water Research, Regional Office Sørlandet, Jon Lilletuns vei 3, NO-4879 Grimstad, Norway*
[3]*Natural History Collections, University Museum of Bergen, University of Bergen, P.O. Box 7800, NO-5020 Bergen, Norway*
[4]*Corresponding author. E-mail: torkild.bakken@ntnu.no*

Abstract

Until recent years, only a few scalibregmatid species have been known from the Nordic Seas, largely from shelf and coastal waters. Access to a large collection from deep areas has made it possible to provide more knowledge on the diversity of this group in the area. *Pseudoscalibregma parvum* (Hansen, 1879) is here redescribed. The species has a wide geographic distribution in the Nordic Seas, the Barents Sea, and the Kara Sea. Type specimens of *Eumenia longisetosa* Théel, 1879 were found to be similar to specimens of *P. parvum*, confirming the synonymy of the species. A new species, *Scalibregma hanseni* **n. sp**., is described from specimens found on the continental slope. It is particularly characterised by having three pairs of rather simple branchiae. Both *P. parvum* and *S. hanseni* have small spines in the most anterior chaetiger(s), resembling spines reported from a few other *Pseudoscalibregma* and *Scalibregma* species and supporting the need to emend the genus diagnosis of *Pseudoscalibregma*. *Scalibregma abyssorum* Hansen, 1879 was reassessed and considered to be a nomen dubium. *Scalibregma inflatum,* which has a wide distribution along the Norwegian coast and continental shelf, is found to be restricted to depths above about 900 m. Depths from 600–800 m on the continental slope represent a transition zone with fluctuations between temperate North Atlantic water (about 7°C) and cold Norwegian Sea water (below 0°C). The three species coexist in this zone, whereas *P. parvum* and *S. hanseni* **n. sp**. extend down to 1700 and 1200 m, respectively, on the slope at temperatures below 0°C.

Key words: Polychaeta, Norwegian Sea, MAREANO, deep sea

Introduction

The scalibregmatids are a group of polychaetes with relatively few described species, in total about 50 (Blake 2000). A number of the known species have been described from the deep sea. The Norwegian scalibregmatids were treated by Støp-Bowitz (1945, 1948). He reported three species, viz. *Scalibregma inflatum*, *Pseudoscalibregma parvum* and *Polyphysia crassa,* based on examination of museum specimens collected over more than a century. *Scalibregma inflatum* and *Polyphysia crassa* were reported from numerous finds along the Norwegian coast, whereas *Pseudoscalibregma parvum* was recorded from a few deep sites on the Norwegian shelf and in Arctic waters. No more species were reported until recent years, when species of *Asclerocheilus* and *Axiokebuita* were found (Oug 2000; Persson & Pleijel 2005).

Recent access to new samples from shelf, offshore slope, and deep-water areas has provided even more species of scalibregmatids. In this study, new information on *Scalibregma* and *Pseudoscalibregma* from deeper parts of the Nordic Seas is presented, including the description of a new species of *Scalibregma* from offshore deep water. *Pseudoscalibregma parvum* appears to be the most abundant scalibregmatid in deep waters. Based on the examination of type material and a large number of newly collected specimens, a redescription of *P. parvum* is provided.

The first described scalibregmatid was *Scalibregma inflatum* Rathke, 1843 from Molde, western Norway. This

Accepted by N. Maciolek: 18 Nov. 2013; published: 6 Jan. 2014

records are from cold Arctic waters. *Scalibregma hanseni* n. sp. is found in a more narrow depth range of 497–1243 m, also from mixed and cold waters. Both *P. parvum* and *S. hanseni* n. sp. are restricted to the continental slope and do not penetrate further into the deeper parts of the slope. The depth distribution of *S. inflatum* seems to be restricted to the shelf and upper continental slope, and mostly to water masses with temperatures higher than 0°C.

The depth range of the species appears to be related to the distribution of waters masses and the temperature regime in the deep Nordic Seas. Similar results have been reported for *Ophelina* species from the Nordic Seas (Kongsrud *et al.* 2011). The scalibregmatids do not, unlike one opheliinid species (*Ophelina opisthobranchiata*), penetrate into the deep basins of the Nordic Seas. It appears that there is a species shift on the slope, with a zone where species with shallow and deep depth distribution restrictions are found, representing a zone with high diversity.

Acknowledgements

The present work has been prepared as part of a project on taxonomic studies of polychaetes in deep areas of the Norwegian Sea financed by the Norwegian Deepwater Programme (NDP), administered by the Norwegian Academy of Science and Letters (DNVA). Torleiv Brattegard, the MAREANO programme and the Centre for Geobiology, University of Bergen is thanked for providing access to material. We are grateful to Katrine Kongshavn and Tom Alvestad for sorting of material, to Katrine Kongshavn and the staff at the Laboratory for Electron Microscopy, UoB for taking the SEM images and to Katrine for preparation of figures, to Nataliya Budaeva for translation of text from Jirkov (2001), and to Elin Sigvaldadóttir for loan of specimens from the SMNH. We are grateful to James A. Blake and Danny Eibye-Jacobsen for valuable comments on the manuscript.

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