

## Summary

The thesis deals with the isopods obtained during the expeditions ANT XIX/3+4 (ANDEEP I+II) with RV “Polarstern” to the deep sea of the Southern Ocean.

It contains the following topics: Taxonomy, biodiversity and zoogeography, phylogeny.

In the taxonomy part two families are treated. Two new species of the family Ischnomesidae, *Stylomesus hexapodus* n. sp. and *Haplomesus corniculatus* n. sp., are described. Both species display neoteny, the retention of juvenile characters in adult specimens. This phenomenon was previously undescribed within the family, yet is common within several other isopod taxa.

The family Haploniscidae is treated in more detail. A description of the family and diagnoses for the four genera *Antennuloniscus* Menzies, 1916, *Mastigoniscus* Lincoln, 1985a, *Chauliodoniscus* Lincoln, 1985a and *Hydroniscus* Hansen, 1916 are given and the family and genera are discussed.

Three *Antennuloniscus* species are described from the ANDEEP material, the new species *A. latoperculus* n. sp. and the two species *A. armatus* Menzies, 1962 and *A. ornatus* Menzies, 1962.

Within the genus *Mastigoniscus* five species are described, *M. polygomphios* n. sp., *M. andeepi* n. sp., *M. pseudoelegans* n. sp., *M. sp. A* and *M. sp. B*. The latter two species remain unnamed, because they are known from juvenile specimens alone.

The genus *Haploniscus* Richardson, 1908 discussed and a species complex within this genus is described. The *Haploniscus cucullus* complex (named after one of its species) comprises the seven new species: *H. cassilatus* n. sp., *H. cucullus* n. sp., *H. weddellensis* n. sp., *H. procerus* n. sp., *H. kyrbasius* n. sp., *H. nudifrons* n. sp. and *H. microkorys* n. sp.

Additionally the intraspecific variation within the family is treated in detail with respect to sexual dimorphism, ontogeny and variation without relation to sex or age.

The biodiversity and zoogeography part deals with all isopods obtained by means of an epibenthic sledge during the ANDEEP expeditions. In total 5525 isopod specimens were sorted from the samples; they belonged to at least 312 species. Most abundant was the family Munnopsididae, followed by Haploniscidae, Ischnomesidae and Desmosomatidae. Only 2% of all isopod specimens belong to suborders other than the Asellota. The community and

diversity patterns were found to be patchy, but the importance of depth as environmental factor could be demonstrated.

Most species identified within the ANDEEP material were known from the Atlantic. Within the family Haploniscidae this is the first record of the genus *Mastigoniscus* in the Atlantic sector of the Southern Ocean. A worldwide distribution of most haploniscid genera can be supposed. Contrary the data from the *Haploniscus cucullus* complex indicate that the geographical range of species is small.

The phylogeny chapter deals with the family Haploniscidae; 48 species from five genera of the family were analyzed. The analysis was conducted with unweighted characters as well as with weighted characters. The resulting consensus trees of both analyses are similar.

The monophyly of *Antennuloniscus*, *Chauliodoniscus*, *Mastigoniscus* and *Hydroniscus* is supported, while *Haploniscus* proved to be polyphyletic, as was expected.

*Antennuloniscus* was found to be the most derived genus of the family, followed by *Chauliodoniscus* and *Mastigoniscus*. *Hydroniscus* was the most basal taxon. Several *Haploniscus* species are grouped in close proximity to *Antennuloniscus* or *Mastigoniscus*.

The consistency indices of the resulting trees and also most of the bootstrap values are low, and some of the important sister-group relationships are only weakly supported, leaving the relationships of the genera to each other somewhat uncertain. The resolution in some terminal clades of the tree also has to be considered as doubtful.