

cage. The present study focuses not only on structural diversity (species number), but also on functional diversity (species identity) and its importance for ecosystem functioning of a muddy bottom.

**THE IMPACTS OF THE DEMERSAL HAKE TRAWL FISHERY ON BENTHIC BIODIVERSITY IN SOUTHERN AFRICA**  
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The South African commercial trawl fishery originated in the early 1900s and targets the highly sought-after gadoid hake species *Merluccius capensis* and *M. paradoxus* in a near continuous band between 300 and 800 m depth from the west to the south-east coasts of South Africa. The transboundary nature of the hake stocks between South Africa and Namibia, where an equally large hake fishery exists, has encouraged joint research and management cooperation between the two countries, for the demersal trawl fishery. The hake fishery is the largest and most lucrative of South Africa's fisheries and was awarded the environmentally sustainable Marine Stewardship Council certification in 2004. The impact of trawling on the benthic environment has however been identified as a major risk to the sustainability of this fishery. The fishery is currently under review for re-certification of this award and requires investigation of potential benthic impacts. Elsewhere studies have shown that demersal fishing gear can impact significantly on benthic biodiversity, however, such effects have never been examined in southern Africa. The aim of this study is to quantify the impacts of the demersal trawl fishery on abundance, biomass and diversity of benthic macrofauna and epifauna in soft bottom habitats along the southern Benguela region. Benthic macrofauna and epifauna were sampled in areas of light vs. intense fishing activity (note: no trawl grounds in this region are afforded any protection from fishing activities hence the necessity to compare light vs. intensely fished areas) at four sites and analysed for significant differences using multivariate techniques (PRIMER). Environmental variables (depth, salinity, temperature, sediment type and organic content) were evaluated, with no significant differences between light vs. intensely trawled areas resulting at each of the four sites. Results strongly indicate that the disturbance induced by demersal fishing contributes towards changes in benthic macrofauna and epifauna community compositions. Whilst no significant differences in diversity indices are evident in macrofauna communities, the species present in heavily trawled areas are significantly different from those in lightly trawled areas. The epifauna communities appear to be severely impacted by trawl-induced disturbance. The implications of these results, and future studies of ecosystem functioning, are discussed.

**Session 1.11. The taxonomic component of marine biodiversity**

Chairs: Geoff Boxshall; Christos Arvanitidis

**MORPHOMETRIC ANALYSIS OF THE GENUS *TERSCELLINGIA* DE MAN, 1888 (NEMATODA, LINHOMOEIDAE) WITH DISCUSSION OF THE DIAGNOSTIC FEATURES AND IDENTIFICATION KEY TO THE SPECIES**

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The cosmopolitan genus *Terschellingia* (Nematoda, Linhomoeidae) is a problematic taxon. Its species show high morphological plasticity, possess few diagnostic characters and identification keys are lacking. A revision of the genus was carried out based on data from the literature and from light and electronic microscopy. The diagnosis of genus was emended. Of the current 37 nominal species, 15 are considered as valid species based on characters related to amphidial fovea, cephalic and cervical setae, shape of oesophageal bulb, spicular apparatus and tail shape. Tabular and pictorial keys were provided based on these characters. The sympatric species: *T. communis*, *T. goubaultae*, and *T. longicaudata* were redescribed based on recently collected Cuban specimens. They showed relatively large differences in body size in comparison with the holotypes, suggesting variation due to local environment. The highest intraspecific variation pertains for the cosmopolitan species *T. longicaudata*, suggesting that morphological plasticity enhanced adaptation to environmental conditions. The notable taxonomic inflation within the genus (13 inquirenda species, 9 junior synonyms), probably also present in other highly specious genera of marine nematodes, leads to overestimation of the alpha-diversity.

**GREEN NON-MOTILE PICOPANKTON, PHYLOGENY, PIGMENTS AND FINE-STRUCTURE.**

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