



The ecology and distribution of benthic foraminifera at the Håkon Mosby mud volcano

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We have examined the living (Rose Bengal stained) and dead (unstained) foraminifera fauna of 16 push core and multiple core sites from the Håkon Mosby mud volcano (HMMV). Cores have been taken from pogonophora fields, bacterial mats, the centre or 'thermal eye' of the mud volcano, marginal to the HMMV and a reference site at distance to the HMMV. Analyzes have been carried out in 1-cm steps from the sediment surface down to 15 cm subbottom depth. Principle component analysis of the living fauna reveals distinct foraminiferal associations for pogonophora fields, bacterial mats, the centre and the reference site. A species and specimen rich foraminifera fauna with high tolerance versus periodic dysoxic conditions characterizes the surface sediments of pogonophora sites. At these sites species restricted to oxic conditions attach themselves to that part of *Sclerolinum contortum* tubes that protrudes into the water column. Species like *Fontbotia wuellerstorfi* and *Lobatula lobatula* were exclusively found living on *Sclerolinum contortum* tubes. With increasing dominance the intermediate to deep infauna of pogonophora sites is characterized by *Bolivina pseudopunctata*, reaching abundances of 80 to 100% at deeper sediment levels.

The faunal density and diversity of benthic foraminifera living at sites of bacterial mats is low. Those cores that were completely covered by *Beggiatoa* exhibited *Cassidulina reniforme* as single living species. However, with decreasing coverage by bacterial mats the number of living species increases to 6 (90% coverage) or 14 (50% coverage) species. In cores of the HMMV centre *Cassidulina reniforme* is the only living species observed, though in very low numbers.

The marginal HMMV and the reference sites reveal slightly higher diversities than observed at the pogonophora sites. Although at pogonophora sites the down-core distri-

bution of living species was restricted to shallower sediment depths than revealed from the reference and marginal HMMV sites, the abundance of endobenthic foraminifera was higher.