temperature gradients at different spatial scales, but the seasonal changes are probably small at stable sites.

Keywords: Harpacticoids, ostracods, groundwater-fed habitat, water temperature, stability

ID: 6018

The influence of bioturbatory macrofaunal species diversity on nematode communities

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Infauna in sediments provide important physical and biogeochemical services, but are under increasing pressure from anthropogenic activities, such as benthic trawling. It is known that trawling disturbance has substantial effects on the larger benthic fauna, reducing density and diversity and altering community structure, biomass, production, bioturbation and biogeochemical processes. To investigate the mechanisms by which trawling impacts on the density of large benthic macrofauna may influence the smaller meiofauna, a mesocosm experiment was conducted in which benthic nematode communities from a non-trawled area were exposed to different densities of 7 large (>10 mm) naturally co-occurring, bioturbating species which are potentially vulnerable to trawling disturbance. The results showed that total abundances of nematodes were lower if any one of these large macrofauna species were present, but that no clear nematode community effects could be assigned to macrofauna density differences. It may be, however, that it is not the density of bioturbators that affects the nematodes, but the range of bioturbatory activity. It is interesting to consider, then, whether the diversity of bioturbators, rather than their density, may influence the associated meiofaunal communities. Here we describe results from additional treatments in which the diversity of bioturbators was manipulated.

Keywords: Diversity, macrofauna, trawling disturbance

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Differential effects of resource diversity on taxis to food, population development, and interspecific interactions of cryptic marine nematode species

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Resource partitioning is central to our understanding of the dynamics of species composition and coexistence in biological communities. Based on the principle of competitive exclusion, species occupying the same ecological niche cannot stably coexist due to strong interspecific competition for resources. Niche diversification, for instance, through resource partitioning, may alleviate competition. In addition, there can be tradeoffs between

competitive and dispersal ability. Here, we present data showing the effects of resource diversity on food preference of nematodes using taxis (i.e. a directed movement)-to-food assays, on population development, and on interspecific interactions of four cryptic bacterivore nematode species (Pm I-IV) of *Litoditis* marina that are often found to co-occur in the field. Three resource (bacteria) diversity levels (low, medium, high) were used as food treatments. Results showed that differences in taxis-to-food were present between the cryptic species and between different levels of resource diversity: the cryptic species (except for Pm I) showed higher attraction towards medium food diversity. Interestingly, our data on the population development after seven days revealed that the best population growth was clearly at high food diversity for Pm II and Pm III, whereas only Pm IV showed a tendency for a faster population growth at medium diversity. However, in interspecific experiments, Pm II reached the highest relative abundances among the four cryptic species at all levels of resource diversity (mostly at medium and high diversity), while Pm I and III occurred at very low relative abundances and only persisted in the E. coli treatment. These results suggest that resource diversity has differential effects on taxis-to-food and on nematode population development and can alter the interspecific interactions among the cryptic species of L. marina, indicating that competitive equilibria between species are likely very context dependent.

Keywords: Cryptic species, coexistence, resource partitioning, resource diversity, nematodes

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Characterization of marine nematode associated microbiomes by high-throughput sequencing

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Invertebrate microbiomes may contain information that is relevant to the feeding ecology, fitness, and symbiotic relationships of their hosts. The present study characterizes the spatial (i.e. two stations with contrasting sediment granulometry) and temporal (i.e. three consecutive seasons) variation in the microbiomes of three microphytobenthos biofilm-associated marine nematode species (*Metachromadora remanei, Praeacanthonchus punctatus, Theristus acer)* in relation to the microbiomes of the nematodes' substrates. Only 5 % of the prokaryotic OTUs found in sediments were ever encountered in nematode microbiomes, and only up to 20 % of OTUs from nematode microbiomes were present in sediments. There was also no link between the proportional abundance of specific bacterial taxa in sediments and in nematodes, demonstrating that nematode microbiomes are distinct from those of sediments. Moreover, only just less than half of the OTUs that were shared between nematodes and sediments were also common to all three nematode species, suggesting selective relationships between nematode species and sediment bacteria. These relationships probably involve selective feeding; no clear indications were found for the presence of prominent species-specific nematode-bacteria symbioses. Differences in nematode microbiomes were mostly prominent between *M. remanei* on the one hand and *T. acer* and *P. punctatus* on the other, which likely reflects known differences in their mode of feeding. The microbiomes of sediments and nematodes were strongly context-dependent, differing among stations as well as seasons. A substantial portion (61 %) of the variation in sediment microbiomes, but a much smaller portion of the variation