DOES MACROFAUNA AFFECT THE BENTHIC PROCESSING OF A SETTLING PHYTOPLANKTON BLOOM?

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Macrofauna-induced particle mixing (bioturbation) and solute transfer (bio-irrigation) contribute extensively to ecosystem functioning in areas where physical disturbance is low. Oxygen and organic matter are transported deeper into the sediment, thereby probably providing favorable niches for the lower parts of the food web and thus stimulating mineralization. Whether macrobenthos facilitates uptake of fresh organic matter by e.g. bacteria and nematodes through niche establishment or rather deprives them from food sources, is so far not clear. In this in vitro experiment, we investigated the influence of the ecosystem engineers *Lanice conchilega* (bio-irrigator) and *Abra alba* (bioturbator) compared to regular physical disturbance events on bacterial and meiofaunal dynamics after a simulated phytoplankton bloom. The uptake of ^{13}C labeled diatoms will be traced down the food web based on stable isotope and fatty acid analysis. Next to this, the vertical dimension of the meiofaunal response was taken into account.

First results on nematode counts indicate that the different functional traits of the macrobenthos vs. regular physical disturbance induce contrasting nematode profiles: nematodes receiving the physical sediment disturbance regime shift to the stratum just below this intensive mixing, whereas they stay around the bioturbated area in the *A. alba* treatments; the bio-irrigating polychaete *L. conchilega* on the other hand, seems to facilitate nematodes to dwell deeper strata of the sediment.

The labelled algae will be distributed differently according to the mixing intensity in each treatment and the results on its uptake and mineralisation by macrofauna, nematodes and bacteria will generate a better understanding of the role of macrofauna in the functioning of the sea floor ecosystem.