Ecosystem engineering in intertidal sand by lugworms as revealed by large-scale experimental exclusion: Results and perspectives

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Deposit-feeding lugworms (*Arenicola marina*) are widespread the dominant large burrowing macrofaunal species and consequently the major source of sediment reworking and bioirrigation in intertidal sediments of the Wadden Sea. In 2002 an ongoing large-scale and long-term lugworm exclusion field experiment was started near the island of Sylt, Germany. Exclusion was achieved by meshing the sediment in 10 cm depth on 6 exclusion plots, each with an area of 400m^2. Effects of 'ecosystem engineering' by lugworms were found to extend beyond the vicinity of individual burrows with considerable implications for sediment properties, biogeochemical proccesses, and the benthic community. This colloquium aims to synthesize the results of the first three years of the experiment and to open perspectives for further (collaborative) research.