

Effects of short term exposure with mine tailings on deep-sea benthic ecosystem function and services

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Mining activities in the deep-sea will have different impacts on marine benthic life on different scales including mechanical habitat destruction, release of toxic amounts of heavy metals or burial with sediment or mine tailings. We evaluated the short term effect of burial with mine tailings on ecosystem functions of deep-sea (207 metres) benthos originating from a Norwegian fjord. Sediment cores were sampled and incubated in the laboratory under constant water flow and a temperature of 8°C. Mine tailings were added to the cores resulting in different thicknesses of added substrate (0 cm (control), 0.1 cm, 0.5 cm and 3 cm). Sediment cores were kept at constant temperature and water flow for a duration of eleven days. Oxygen profiles were measured at the beginning and at the end of the experiment. Sediment oxygen consumption, silicate content and dissolved inorganic carbon content was measured at the end of the incubation. Sediment cores were sliced and macrofauna as well as meiofauna was sampled. In order to assess viability of the animals, a life check was done for macrofauna and meiofauna was stained with a trypan blue stain. Results regarding vertical meiofauna community structure, nematode mortality and diversity will be explained and related to the abiotic variables and respiration measurements.

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