

インド洋酸素極小層内の底生微生物相と炭素・窒素循環 Benthic prokaryote community and their roles on biogeochemical cycles under the oxygen minimum zone

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We investigated the impacts of the oxygen minimum zone (OMZ) on the benthic prokaryotic communities and biogeochemical cycles off India. Surface sediments were collected from three sites; core of the OMZ (water depth of 530 m), lower part of the OMZ (water depth of 800 m), and lower boundary of the OMZ (water depth of 1150 m). Porewater nutrient concentrations, organic matter contents, and diversity and abundances of microbial SSU rRNA and their functional genes were examined using the sediment cores down to 10 cm depth. In situ experiments using ¹³C-labeled bicarbonate were also carried out at the same stations to evaluate carbon fixation rates at each site. The results demonstrated variability of benthic microbial communities with different carbon fixation rate across oxygen gradient of the bottom water.

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