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Niche separation of nitrifiers and anammox in deep-sea sediments.

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We revealed the distribution patterns of nitrifiers and anammox along with geochemical gradients in a hadopelagic sediment core from the Ogasawara Trench (Nunoura et al. 2013). The results presented novel insights into the inorganic nitrogen cycle in deep-sea sediments as shown below. 1) Thaumarchaeotes and *Nitrospina* predominates in the ammonia and nitrite-oxidizing communites, respectively. 2) The pore-water nitrate recorded isotopic signatures of nitrification. 3) Abundance of anammox was likely regulated by not only by redox potential but also by nitrite supply from ammonia oxidation. 4) Maximum abundance of denitrifier occurred at sediment surface.

The purpose of this study is to know the roles of benthic microbial inorganic nitrogen cycle in diverse deep-sea environments. In this study, we compared pore water chemistry, and abundance and composition of nitrifier and anammox populations in 6 distinct regions, and will discuss about the roles of dynamic nitrogen cycle in deep-sea benthic environments.

Keywords: nitrification, anammox