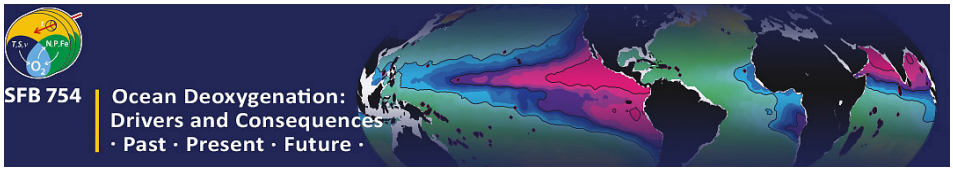

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Impact of nutrient stoichiometry on the microbial community structure in an in situ pelagic mesocosm experiment simulating a Peruvian costal upwelling event

Coastal upwelling introduces nutrient-rich bottom waters into the sunlit surface waters and thereby stimulates high biological productivity. The Peruvian upwelling system in particular is one of the most productive coastal upwelling systems (Lachkar, Gruber 2012; Espinoza-Morriberón et al. 2017). An upwelling event was simulated in an in situ mesocosm study in the coastal region off Callao, Peru, in close proximity to the oxygen minimum zone by the addition of selected anoxic bottom waters with different nutrient concentrations to surface waters enclosed in the mesocosms. By this approach, two conditions with different N/P-ratios and nutrient concentrations were produced in a replicated setup and sampled over 40 days. The microbial community in the experiment was sampled by consecutive filtration using different pore sized filters to differentiate between particle associated and free living microbes. Next-generation 16S rRNA gene amplicon sequence analysis was used to analyze the microbial community composition and its changes over time (Roy et al. 2012). The influence of nutrient availability and stoichiometry on the development of the microbial community during the course of the experiment will be presented with a special focus on the differences observed between the particle-associated and free microbial community. Additionally, the analysis of the genetic potential within these two fractions will allow us to infer on the metabolic potential of the microbial community and the role of key organisms in overall biogeochemical fluxes.

Publication bibliography

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