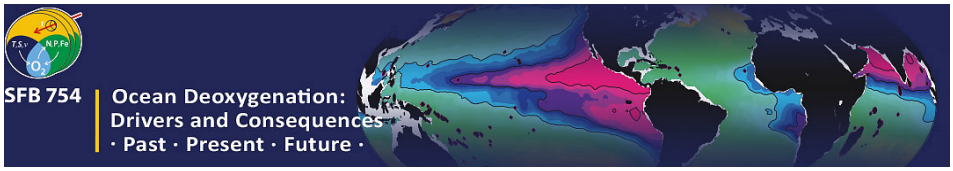

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A BENTHIC PHOSPHORUS BUDGET FOR THE PERUVIAN OXYGEN MINIMUM ZONE

Environmental conditions in oxygen minimum zones generally favour the benthic release of phosphorus and other nutrients into the water column. This process may sustain a positive feedback loop enhancing primary productivity and further expansion of low-oxygen water masses globally. Previous observations along the Peruvian continental margin revealed that dissolved benthic phosphorus fluxes were always higher than the rain rate of total particulate phosphorus to the seabed, indicating a lacking source of phosphorus to the sediments. Non-steady state conditions, e.g. the transient phosphorus release by bacterial mats that had stored P in form of polyphosphates during periods of bottom water oxygenation have been suggested as most likely explanation for this phenomenon. However, new findings call this interpretation into question. We will present a revised benthic phosphorus budget based on new data obtained during RV Meteor expedition M 137 comprising benthic flux measurements, composition of surface sediments and water column particles, as well as data from incubation experiments.

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