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## **Disentangling oxygen depletion in the Benguela Upwelling System: A biophysical approach.**

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Understanding the multilevel complexity of marine ecosystems is one of the greatest challenges on ecosystem modeling so far, due to the dualism of governing hydrodynamical processes acting on a regional scale and complex biogeochemical chain reactions that happen locally on the marine environment. A coupled hydrodynamic-ecological model based on nitrogen stoichiometry has been developed to better understand the short-term nutrient and oxygen coastal dynamics in the Benguela Upwelling System (BUS). The model shows that the effect of internal waves in the Benguela region re-shapes the benthic ecosystem due to the increased of turbulence on the ocean floor with a consequently increase of fine sediment on the water column. We show that an increase on organic-rich sediment resuspension on the water column enhance oxygen consumption and ultimately contribute to the apparent deoxygenation of the Namibian coastal shelf.