

# MODELLING THE ECOSYSTEM DYNAMICS OF THE EASTERN TROPICAL SOUTH PACIFIC

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## **Abstract**

The Eastern Tropical South Pacific ocean embeds one of the most productive regions in the world, resulting from the coastal upwelling of deep nutrient-rich waters that sustains about 10% of the global fish catch. This region is also known for its poor ventilation by ocean dynamics which causes one of the most intense shallow Oxygen Minimum. This poor-oxygen waters can act as a barrier for marine organisms, having a negative impact on the ecosystem and global socio-economic repercussions. Additionally, longer-term variability, such as El Niño Southern Oscillation affects the dynamics of this regions and cause perturbations in the environmental conditions. Understanding the interactions between physical, biogeochemical, and ecological processes is therefore important to ensure a sustainable utilization of living marine resources, and can support ecosystem based management of fisheries. Using a coupled physical-biogeochemical and food web model, we aim at investigating the variability of the fish population and biogeochemistry of the Eastern Tropical South Pacific under changing environment