

## ZoOMin at TENATSO

### “Zooplankton of the Oxygen Minimum zone at the Tropical Eastern Atlantic Time-Series Observatory”

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Oxygen minimum zones (OMZs) are found in the eastern tropical Atlantic and Pacific, as well as throughout the tropical Indian and are large volumes of hypoxic or suboxic water in intermediate depths of 200 to about 1000 m. For some animals the OMZ is an inhospitable region, whereas other organisms constantly live therein or perform diel vertical migrations (DVMs) into and out of this area. DVMs of zooplankton are an important factor in the transfer of organic matter from surface to deeper water layers, and thereby in the establishment of OMZs. Food is consumed in upper layers and excreted as faecal pellets as well as respired at depth. The extent of OMZs in the tropics increased during the last 50 years and is predicted to increase further. However, the effects on the ecosystem are not well understood.

Within the “ZoOMin at TENATSO” project we are studying the role of zooplankton organisms for the withdrawal of oxygen from and the transfer of carbon to oxygen minimum layers of the tropical eastern Atlantic. We perform depth-specific zooplankton catches during day- and nighttime. Parameters investigated include: zooplankton abundance, diversity and biomass, faecal pellet production, as well as respiration rates

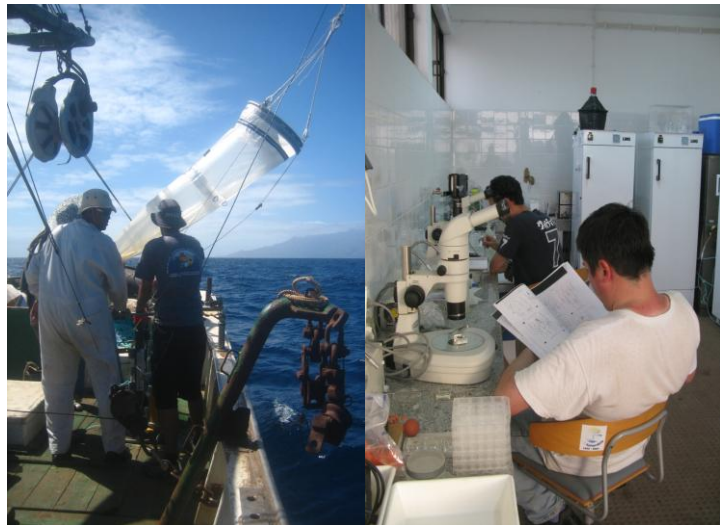


Fig. 1: Laboratory work at the INDP (left), deployment of a zooplankton net (right).

of dominant species (under at-depth and at-surface  $O_2$ ,  $CO_2$ , T conditions) and the determination of hypoxia tolerance thresholds for dominant species. Resulting data will be used to further optimize models on carbon and oxygen dynamics in OMZs.

The work on zooplankton abundance and diversity will be integrated into the general sampling scheme of CVOO. At least three entire years will be sampled in order to constrain seasonal cycles of zooplankton abundance and diversity at the CVOO site.

During two field phases in 2010 (15.3. - 9.4. and 18.5. to 12.6.) we were able to conduct 10 sampling cruises with the small fishing vessel Sinagoga to an area south of Sao Vicente (16°46,28 N; 25°07,40 W). During eight day-long expeditions and two short trips we could gather a considerable set of samples. In addition to standard zooplankton catches with a WP2-closing net, we could also successfully deploy an *in situ* fixation unit, which was especially developed within the project for the fixation of zooplankton at in situ conditions at depth. Currently, we are analyzing the samples from these field phases.

People involved:

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Funding:

1. DFG through the Cluster of Excellence "The Future Ocean" project: "The role of zooplankton in tropical oxygen minimum layers: physiological adaptation and contribution to fluxes of carbon and oxygen"
2. DFG through the Sonderforschungsbereich 754 "Climate - Biogeochemistry Interactions in the Tropical Ocean."