

**SPATIAL ASSEMBLAGES OF MICRONEKTONIC CRUSTACEANS
(Decapoda, Euphausiacea, Lophogastrida, and Mysida) SUPPORT
PELAGIC ECOREGIONS ALONG A LATITUDINAL TRANSECT IN
THE ATLANTIC OCEAN.**

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Abstract: The micronekton community of pelagic shrimps was studied by means of taxonomic composition, abundance and biomass analysis, across a latitudinal transect in the Atlantic Ocean from off Brazil coast (15°S) to the south of Iceland (55°N). Total abundance and biomass were sampled by Mesopelagos net with a mouth opening of 5 x 7 m and a total length of 58 m. Vertical variation of temperature, conductivity, pressure, dissolved oxygen and fluorescence were recorded by CTD profiler. Different depth levels were established and samples were taken during the daytime and nightly at each sampling station. A total of 132 species were identified belonging to 10 different families. Euphausiidae was the most abundant family and Acanthephyridae was the family that most contributed to the total biomass. Pelagic shrimp assemblages, related with latitudinal changes in biomass and abundance, agreed with previous delimitation of ecoregions in the Atlantic Ocean (Foxtom, 1970; Fasham and Foxtom, 1979; Sutton et al., 2017). Diel vertical migrations were detected along the transect, with a maximum of biomass within the Oxygen Minimum Zone (OMZ) during the daytime, that coincides with a maximum of Chl-a (Vereshchaka et al., 2016). According to the information obtained of Euphausiacea, Decapoda and Lophogastrida biomass in both cruises, we have estimated a total of 22.9 tC in the Atlantic Ocean, that agree with previous works (Vereshchaka et al., 2019). We must point out that we only sampled the first 1700 m and 850 m of the water column in North Atlantic and Central Atlantic, respectively, that obviously suggest an underestimation of the actual total biomass. This underestimation is even higher considering that the calculations were done assuming a net efficiency of 50% (Hernández-León, et al., 2019).

Key words: Micronekton community, mesopelagic, decapod shrimps, Atlantic Ocean.

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References:

- Fasham, M. J. R. ., & Foxton, P. (1979). Zonal distribution of pelagic decapoda (Crustacea) in the Eastern North Atlantic and Its Relation To the physical oceanography. *Journal of Experimental Marine Biology and Ecology*, 37(1975), 225–253.
- Foxton, P. (1970). The vertical distribution of pelagic decapods [crustacea: Natantia] collected on the sond cruise 1965 II. The penaeidea and general discussion. *Journal of the Marine Biological Association of the United Kingdom*, 50(4), 961–1000. <https://doi.org/10.1017/S0025315400005919>
- Sutton, T. T., Clark, M. R., Dunn, D. C., Halpin, P. N., Rogers, A. D., Guinotte, J., Bograd, S.J., Angel, M.V., Pérez, J.A.A., Wishner, K., Haedrich, R.L., Lindsay, D.J., Drazen, J.C., Vereshchaka, A., Piatkoeski, U., Morato, T., Błachowiak-Samołyk, K., Robison, H.B., Gjerde, K.M., Pierrot-Bults, A., Bernal, P., Reygondeau, G., Heino, M. (2017). *Deep-Sea Research Part I A global biogeographic classification of the mesopelagic zone*. 126(May), 85–102. <https://doi.org/10.1016/j.dsr.2017.05.006>
- Hernández-León, S., Olivar, M. P., Fernández de Puelles, M. L., Bode, A., Castellón, A., López-Pérez, C., Tuset, V.M., González-Gordillo, J. I. (2019). Zooplankton and Micronekton Active Flux Across the Tropical and Subtropical Atlantic Ocean. *Frontiers in Marine Science*, 6(September), 1–20. <https://doi.org/10.3389/fmars.2019.00535>
- Vereshchaka, A., Abyzova, G., Lunina, A., Musaeva, E., & Sutton, T. (2016). A novel approach reveals high zooplankton standing stock deep in the sea. *Biogeosciences*, 13(22), 6261–6271. <https://doi.org/10.5194/bg-13-6261-2016>
- Vereshchaka, A. L., Lunina, A. A., & Sutton, T. (2019). Assessing Deep-Pelagic Shrimp Biomass to 3000 m in The Atlantic Ocean and Ramifications of Upscaled Global Biomass. *Scientific Reports*, 9(1), 1–11. <https://doi.org/10.1038/s41598-019-42472-8>