VARIATION SPACE-TIME COMMUNITY ZOOPLANCTON IN RESPONSE TO THE HYDROCHEMISTRY IN THE PARAÍBA DO SUL RIVER ESTUARY, RJ

In order to define the zooplankton composition, seasonal variation and population structure, related with the hydrochemistry in the Paraíba do Sul River estuary, RJ, samples were collected in nine stations, using a conical plankton net with a 200 micron mesh size. Environmental data (e.g. salinity, temperature, dissolved oxygen, alkalinity and pH) along with dissolved nutrients such as $N\text{-}NO_3^-$, $N\text{-}NO_2^-$, $N\text{-}NH_4^+$, NTD, $P\text{-}PO_4^{3-}$, H_4SiO_4, SPM and chlorophyll-*a* were determined. The estuary was characterized by two distinct regions when considering the distribution of hydrochemical parameters: one inner region under the influence of continental water, where the hydrochemistry is characterized by high nutrient concentrations, temperature and oxygen values; and one outer region where the influence of coastal waters predominate with high values of salinity, alkalinity, pH and water transparence. Nutrient concentrations, such as N, had higher values mainly in the wet season. High nitrite and ammonium concentrations found at the limit of the estuarine plume are due to the existence of high bacteria activity that occur in this region promoting the ammonium and nitrite oxidation, as well as the existence of a local cyclonic eddy that promotes the ressupension of nutrients to the water column. Zooplankton presented holoplanktonic and meroplanktonic organisms, being copepods the most abundant group with the highest number of species (54). *Acartia lilljeborgi*, *Acartia tonsa*, *Temora turbinata*, *Bestiolina* sp, *Oithona hebes*, *Euterpina acutifrons*, *Paracalanus parvus*, *Parvocalanus crassirostris*, *Notodiaptomus conifer*, *Thermocyclops crassus*, *Moina micrura* and *Simocephalus vetalus* were the most abundant species. The highest abundances occurred in the winter and the lowest in the summer. The zooplankton community showed a seasonal distribution pattern where, in the estuarine zones, due to salinity, *T. turbinata*, *E. acutifrons P. parvus* and *P. crassirostris* were identified as indicator species of the coastal zone water mass. *A. lilljeborgi*, *A. tonsa*, *O. hebes* e *Bestiolina* sp were associated with the stations of the mixture zone. *S. vetalus*, *M. micrura*, *T. crassus* e *N. conifer* were associated to the inner estuary waters at the river zone. The maintenance of this spatial pattern is influenced mainly by the

salinity variation that produces a horizontal gradient in the estuary, delimiting the estuarine zones and, consequently, the species distribution. The nutrients distribution does not seem to influence the zooplankton community directy, once the increase in these concentrations does not lead to an increase in zooplankton abundance. The factor that seems to predominate in the distribution and abundance of the zooplankton is food supply, influenced by light aviability that pass through the water column, along with the reduction of the salinity values that occur due to a high river water flow and, consequently, the decrease in water residence time.