New findings on epipelagic copepods of the Colombian Pacific Ocean based on historical data: September 2003

López Peralta Raúl Hernando

Lab Hydrobiology, Apply Biology Program, Universidad Militar Nueva Granada, Edificio Francisco Antonio Zea-Piso 1, Campus Nueva Granada, Cajicá, Colombia
E-mail: raul.lopez@unimilitar.edu.co

Based on data of September 2003, recent advances in the understanding of the copepod community in the Colombian Pacific Ocean (CPO) are presented, since these organisms are a key link between lower and higher trophic levels, have and important role in the carbon and nitrogen cycles, and some are bioindicators of changes in environmental conditions. Surface phytoplankton (chlorophyll-*a*) and zooplankton biomasses, as well as some abiotic variables were evaluated in twelve night and twelve daytime stations distributed throughout the CPO. Zooplankton samples were collected with a standard conic net (50 cm-opening, 363 µm-mesh size). CTD data was taken to document termohaline spatial differences.

Inverse relationships among copepods and phytoplankton and zooplankton biomass in several sampling stations could be explained by trophic relationships, among other causes. Copepod abundance and zooplankton biomass were more representative in intermediate waters (41.8% and 56.7%, respectively), suggesting a transitional area in their spatial distribution. On the contrary, phytoplankton biomass was higher in coastal waters (79.3%), as usually observed in such areas, where upwelling processes are frequent. The higher copepod night abundance (62.6%) could be related to their diel vertical migration, usually in order to avoid predation. Calanoida was the most abundant order (45.1%) with the genera (0.03-4.8%): *Acrocalanus, Calocalanus, Candacia, Canthocalanus, Centropagues, Clausocalanus, Cosmocalanus, Euchaeta, Labidocera, Lucicutia, Nannocalanus, Paracalanus, Pleuromamma, Pontella, Pontellina, Rhincalanus, Subeucalanus, Temora*, and *Undinula*.

Nevertheless, *Oncaea* (Cyclopoida) (42.4%) showed the highest abundance and widest distribution, followed by *Corycaeus* (11.0%), *Sapphirina* 1.1%, *Copilia* 0.2%, and *Farranula* (0.1%) (Poecilostomatoida). *Microsetella* (0.1%) was the only representative of Harpacticoida. This taxonomic composition is analogous of that of September 2001 and 2002. *Oncaea* and *Corycaeus* were the most abundant by night (45.2% and 11.3% respectively). Moon phases influence was also observed, since copepods and zooplankton biomass (65.9%) were more abundant during the first quarter (53.9%), confirming that this phenomenon is produced in the CPO, like in other regions. The spatial distribution of the organisms could be influenced by currents. The effect of salinity was *greater* than temperature, perhaps due to the coastal-oceanic gradient of low to high salinity, inverse to temperature, which is a typical characteristic of normal environmental conditions in the CPO. These findings were supported by significant associations (PCA) among abiotic and biotic variables. Notwithstanding, it is advisable to include samplings in other months due to chronological changes in environmental conditions.

Keywords: *Copepoda*; *Oncaea*; zooplankton; phytoplankton; trophic relationships; light influence