

Zooplankton Community Structure in the Littoral Zones of Laguna de Bay reflects Land Cover and Nutrient Loading in near-shore areas

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Laguna de Bay plays a vital role in providing drinking water, food, and livelihood not only to lakeshore inhabitants, but to those residing in its watershed areas. However, anthropogenic influences have led to the decrease in the lake's water quality, and this situation calls for an appropriate monitoring tool of lake's status. Zooplankton quickly respond to changes in water quality, making them a viable addition to the lake's monitoring programs. Thirty-three littoral sites around the lake were sampled, and eighteen species were identified. Cluster analysis using euclidean similarity index of zooplankton biodiversity indices and water quality parameters revealed that the lake has three major divisions that coincided with land cover in the adjacent watershed - northern, southern and Talim Island. The computed Cyclopoida-Calanoida ratios showed that calanoids were more abundant than cyclopoids in the lake. This should have indicated good water quality, however, the lake's calanoid copepod is the invasive *Arctodiaptomus dorsalis* - a known eutrophic tolerant species. This was further supported by the abundance of the rotifers *Keratella* and *Brachionus* which validated the eutrophic status of the lake. The results of this study show how responsive zooplankton community structure is to prevailing environmental conditions which in turn is influenced by land cover in the surrounding watershed.

Keywords: eutrophication, lake monitoring, freshwater zooplankton, cyclopoid-calanoid ratio