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PII: S0924-7963(17)30494-3
DOI: doi:10.1016/j.jmarsys.2018.06.009
Reference: MARSYS 3095

To appear in: *Journal of Marine Systems*

Received date: 7 December 2017
Revised date: 30 May 2018
Accepted date: 19 June 2018

Please cite this article as: Gladis A. López-Ibarra, Antonio Bode, Sergio Hernández-Trujillo, Manuel J. Zetina-Rejón, Francisco Arreguin-Sánchez , Trophic position of 12 dominant pelagic copepods in the eastern tropical Pacific Ocean. Marsys (2018), doi:10.1016/j.jmarsys.2018.06.009

Trophic position of 12 dominant pelagic copepods in the eastern tropical Pacific Ocean

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ABSTRACT

In this study, the trophic structure of the pelagic copepod community was analyzed in six geographical zones in the eastern tropical Pacific Ocean. Zooplankton samples were collected on two oceanographic cruises from August to December 2003 using a bongo cone net (333 μm mesh light). The isotopic signatures were measured as $\delta^{15}N$ and $\delta^{13}C$ in twelve selected species based on their dominance and their feeding types. We observed a significant latitudinal gradient in $\delta^{15}N$ values, generally increasing northwards. The values of $\delta^{13}C$ isotopes did not show a significant longitudinal gradient, but geographical differences occurred in some species. *Pleuromamma robusta* was recognized as the species with the highest trophic position in the copepod community. In general, there was a positive relationship between average body size and trophic position, except for the herbivorous species *Eucalanus inermis*, which was detected in the lowest trophic position. The isotopic niche was similar for each of the 12 species of copepods studied, but in most cases, the niche overlap between each pair of species was low and not higher than 50%. While the differences in isotopic signatures can be attributed mainly to the dominant nutrient sources in each zone, the low trophic niche overlap may be explained by the differential spatial distribution of species, reducing competition for food resources.

Keywords: Pelagic copepods; stable isotopes; trophic position; trophic niche; eastern tropical Pacific Ocean