

Non-predatory mortality in dominant copepods in the northern Chile (23°S) Humboldt Current Ecosystem

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Live/ dead composition and non-predatory mortality are important variables in zooplankton population biology, but they began to gain researchers' attention only in the recent years. Although carcasses may be less abundant than alive copepods *in situ*, ignoring them would introduce errors into estimation of demographic parameters, including mortality rates. These errors can be considerable, especially when the abundance of carcasses relative to live animals varies throughout ontogeny (e.g. higher percent dead in younger copepodite stages). Using detailed staged specific live and dead abundances and growth (moulting) data, we estimated mortality rates on dominant copepods in Humboldt Current Ecosystem, mainly for *Calanus chilensis*, *Acartia tonsa* and *Paracalanus indicus* from modified Vertical Life Table (VLT) approach, is was calculated using stage durations for these species (from the Belehradek equation). An average non-predatory mortality rate for copepodites of 0.108 d⁻¹ of *C. chilensis* 0.011 d⁻¹ for *A. tonsa*, and 0.019 d⁻¹ for *P. cf. indicus* in the Mejillones Bay, which accounted for 10%, 11% and 12% of the total copepodite mortality, respectively. Here, we have described a way of using carcass abundance data to estimate non-predatory mortality of copepods. Further improvements to this approach are needed, particularly for estimating carcass turnover time (τ) in our environment. Nonetheless, this approach will allow researchers to begin to study non-predatory copepod mortality in greater details. This is a welcomed progress and would likely stimulate further discussion and research into this topic.

Keywords: Non-predatory mortality, Copepod carcass Humboldt Current Ecosystem, Belehradek