

南東部ボーフォート海におけるカイアシ類遺骸フラックスの急激な減少

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Rapid decrease in vertical flux of fresh copepod carcass under the pycnocline in the southeastern Beaufort Sea

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Passively sinking dead copepods (i.e. undecomposed copepod carcasses) is a grossly ignored component of vertical particulate organic carbon (POC) flux, resulting in the underestimation of the total POC flux. Recent studies pointed out the significant contribution of copepod carcasses to the annual export POC flux (up to 36%) from the surface mixed layer. Those studies suggested that the fresh copepod carcasses were likely to be very nutritive particles when compared to refractory and/or diluted detrital particles remaining. Uncertainties, however, remain regarding the ultimate fate of these fresh POC under the pycnocline. In this study, we estimated the carcass flux at two depths (at 100 m and 200 m) under the pycnocline. The annual copepod carcass flux at 100 m and 200 m were $2000 \text{ mg C m}^{-2} \text{ d}^{-1}$ and $49 \text{ mg C m}^{-2} \text{ d}^{-1}$, respectively. Our result shows that 98% of the fresh carcasses were retained in water column between 100 m and 200 m. Our study suggests that the carcasses were consumed rapidly in the water column between 100 m and 200 m by heterotrophs such as zooplankton and bacteria.