

{rokbox title=|Vertical distribution of zooplankton biomass :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-large-deep-sea-zooplankton-biomass-mirrors-primary-production-global-ocean-hernandez-leon-et-al-2020-thumb.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-large-deep-sea-zooplankton-biomass-mirrors-primary-production-global-ocean-hernandez-leon-et-al-2020-thumb.jpg|/rokbox}

S. Hernández-León, R. Koppelman, E. Fraile-Nuez, A. Bode, C. Mompeán, X. Irigoien, M. P. Olivar, F. Echevarría, **M. L. Fernández de Puelles**, J. I. González-Gordillo, A. Cózar, J. L. Acuña, S. Agustí and C. M. Duarte , 2020.

[Large deep-sea zooplankton biomass mirrors primary production in the global ocean.](#)
Nature Communications 11, 6048 (2020). <https://doi.org/10.1038/s41467-020-19875-7>

Abstract: The biological pump transports organic carbon produced by photosynthesis to the meso- and bathypelagic zones, the latter removing carbon from exchanging with the atmosphere over centennial time scales. Organisms living in both zones are supported by a passive flux of particles, and carbon transported to the deep-sea through vertical zooplankton migrations. Here we report globally-coherent positive relationships between zooplankton biomass in the epi-, meso-, and bathypelagic layers and average net primary production (NPP). We do so based on a global assessment of available deep-sea zooplankton biomass data and large-scale estimates of average NPP. The relationships obtained imply that increased NPP leads to enhanced transference of organic carbon to the deep ocean. Estimated remineralization from respiration rates by deep-sea zooplankton requires a minimum supply of 0.44 Pg C y⁻¹ transported into the bathypelagic ocean, comparable to the passive carbon sequestration. We suggest that the global coupling between NPP and bathypelagic zooplankton biomass must be also supported by an active transport mechanism associated to vertical zooplankton migration.

Keywords: