

Role of the zooplankton community composition on the mineralisation and the vertical flux of organic matter at a fixed station in the Ligurian Sea

MOUSSEAU LAURE¹, LEFEVRE DOMINIQUE², ANDERSEN VALERIE¹, NARCY FANNY¹, NIVAL PAUL¹,

¹ *Laboratoire d'Océanographie de Villefranche, OOV, Université Pierre et Marie Curie Paris6, France*

² *LMGEM UMR CNRS 6117, France*

Zooplankton play a key role both in the vertical transfer of particulate organic matter and in the mineralisation of organic matter. As this compartment exhibits specific and functional diversities, there is a need for more accurate estimates of the specific physiological rates to assess and quantify the role of zooplankton on biogenic element cycling and on trophic web.

At a fixed station in the Ligurian Sea, we sampled the zooplankton (> 150µm) community 20 times during the summer-autumn transition (13 sept.-17 oct. 2004). Vertical biomass and species composition were described. Then specific physiological rates (CO₂ and O₂ respiration; N-NH₄ excretion) as well as specific gut contents were estimated for the major taxa. Simultaneous measurements of the 3 physiological rates allowed to estimate the respiratory (RQ) and the metabolic (MR) quotients. Our results suggest a variety of physiological activities among the species, underlining the importance of studying the zooplankton not as a whole, but as a multifunctional association. We attempted to estimate (1) the metabolic activity of the whole zooplankton community by combining specific physiological rates and species composition, and (2) the proportion of organic carbon being remineralised within the upper water column against the exported carbon.

¹ Laboratoire d'Océanographie de Villefranche (LOV, UMR 7093), Université Pierre et Marie Curie Paris6, Observatoire Océanologique, BP 28, F-06234 Villefranche-sur-Mer cedex

² LMGEM UMR CNRS 6117, Campus de Luminy Case 901, F-13 288 Marseille cedex 9