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#### VERTICAL DISTRIBUTION OF ZOOPLANKTON IN THE CANARY ISLAND WATERS: IMPLICATIONS FOR THE EXPORT FLUX

Zooplankton biomass, electron transport system (ETS) activity and gut fluorescence were measured in two different size classes (<1 mm and >1mm) in vertical profiles (0-900 m) south of the Canary Islands. Both size fractions displayed a typical pattern of distribution with higher biomasses, ETS and gut fluorescence at the shallower layers at night. During the day, the vertical distribution varied among the size fractions. The smaller fraction presented higher biomasses in the upper 200 m while the larger fraction formed a layer at about 500 m. Average ETS activity and gut fluorescence below 200 m were higher during the day than during the night. The measured downward export of respiratory carbon was  $2.6 \text{ mgC m}^{-2} \text{ d}^{-1}$  which represented the 23% of the calculated particulate export production from primary production. Assuming that herbivorous feeding only occurs in the upper 200 m, that pigments are defecated during the organisms residence time at depth (10-12 h) and considering an assimilation efficiency of 70%, the estimated flux accounts for an average 25% of the particle export due to the so-called "gut flux". Our results agree with previous estimations which suggest that the diel-migrant zooplankton play an important role in the downward flux of carbon. It is also suggested that these zooplankton mediated processes could explain the decoupling observed between primary production and the gravitational fluxes of particulate carbon in the ocean.