

CARBON FLUXES DUE TO MIGRANT ZOOPLANKTON MOVEMENTS DURING THE LATE WINTER BLOOM IN THE CANARY ISLANDS WATERS.

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Temporal variability of zooplankton vertical distribution (0-800 m) was studied at dawn, noon and night in a station located at 100 km to the North of Gran Canaria Island (Canary Islands) during March 2000. Zooplankton biomass (protein content), indices of feeding (gut fluorescence, GF) and indices of metabolism (electron transfer system activity, ETS) were measured at the end of a late winter bloom period. Two dense layers of organisms were clearly observed during the day, one above 200m and the other at about 500 m, coincident with the deep scattering layer (DSL). A typical pattern of higher biomass in the shallower layers was displayed at night. Biomass in the 0-200 m layer remained high during the study period due to the combination of the influence of the late winter bloom, a dust storm. Average ETS activity was almost two-fold higher above 200 m than at 200-800 m depth.. The gut flux estimated (1.262 mg C·m⁻²·d⁻¹) was similar to the values previously found in the Canary Island waters. This value represent 2.5% of the calculated passive particulate export production resulting from primary production. The active respiratory flux mediated by diel vertical migrants (1.23-2.70 mg C·m⁻²·d⁻¹) was in the lower range of values reported for this area. This value represented only 5% of the calculated total passive particulate export production. These results agree with previous estimates and suggest that dielmigrants play a moderate role in the downward flux of carbon.

Keywords: Canary Islands, carbon flux, metabolism, respiration flux, vertical migration, zooplankton, late winter bloom.