

## Interannual (2016–2017) variability of winter-spring microzooplankton in the open South Adriatic Sea: Effects of deep convection

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The South Adriatic is an entry point for water masses originating from the Ionian Sea and a place of dense water formation for the eastern Mediterranean deep circulation cell. Water masses, entering the South Adriatic in larger amount during the winter, show decadal variability explained by different circulating regimes (cyclonic and anticyclonic) in the Ionian Sea. This study has drawn attention to an aspect of the winter ecology of the open South Adriatic that heretofore has not been incorporated into explanations of the distribution and production of its planktonic communities. Four sampling stations (P-100, P-150, P-300 and P-1200) were situated along the central transect of the South Adriatic. Zooplankton were sampled with vertical hauls of Nansen opening-closing net in the winter and spring months for two years (2016–2017). Total microzooplankton abundances, community structure, spatial and temporal variability of microzooplanktonic groups, hydrography and biological properties are presented. In 2016 the highest microzooplankton abundance was in January at the 0–50 m layer of all stations. The maximum, 22575 ind m<sup>-3</sup> was at the nearshore station P-100. Copepod nauplii were the dominant with high contributed tintinnids (*Undella claparedei*, *Eutintinnus lusus-undae*, *Epiplocylis undella* and *Dictyocysta mitra*). Abundance then generally decreased both offshore and with depth. In 2017 microzooplankton provides strong evidence of convective events. Exceptionally high abundances of tintinnid, copepod nauplii and adult copepods were recorded in April with maximum 46234 ind m<sup>-3</sup> in the surface layer station P-1200. The largest part of the population was made of adult copepods with nauplii and copepodites and also tintinnids (*U. claparedei*, *E. lusus-undae*, *Salpingella acuminata*, *Codonella aspera* and *Codonella amphorella*). However, even though tintinnids and copepods declined with increasing depth, their abundance during 2017 was several times higher in some layers below 200 m than in 2016 and previous winter investigations in the deep South Adriatic. Therefore, year-to-year variability in the intensity of winter convection may have an important impact on the biogeo-chemical cycle and carbon storage in the Deep South Adriatic.

Keywords: microzooplankton; tintinnids; copepod nauplii; deep winter convection; South Adriatic