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Changes in Adriatic non-crustacean zooplankton community - influence of hydroclimatic changes

In the last two decades 21 species of non-crustacean zooplankton were observed for the first time in the South Adriatic, two species were recorded after years of absence, while four recorded species were new to science.

Origin and the timing of the arrival of non-indigenous species tracked the changes in salinity in the South Adriatic driven by Bimodal Oscillating System (BiOS). According to recently postulated BiOS theory, the direction of the circulation of North Ionian Gyre (NIG) drives the inflow of different water masses into the Adriatic, which in turn modifies the Adriatic water outflow and reverses the circulation in the NIG. The occurrence of Atlantic/Western Mediterranean species coincided with the anti-cyclonic circulation in the NIG which brings Modified Atlantic Water into the Adriatic Sea, while the presence of Lessepsian species coincided with the cyclonic pattern in the NIG, which governs the entrance of Eastern Mediterranean waters.

The impact of newcomers has translated into a larger contribution within the zooplankton community and, in particular cases, into the replacement of native species. The synergistic effects of these processes, together with warmer Mediterranean waters, raise concerns on dramatic changes in the marine biodiversity of the Adriatic Sea.

Keywords: non-crustacean zooplankton, new species, indicator species, Adriatic, hydroclimatic changes

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