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First report of cyanotoxins in benthic mats from Lake Garda

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Cyanobacteria represent a health hazard in aquatic environments due to their ability to produce a range of toxic metabolites, which can cause either immediate illness or long-term effects in both humans and animals. In the large subalpine lakes planktonic species *Planktothrix rubescens* and *Tychonema bourrellyi* are the main responsible of toxin production (microcystins and anatoxins, respectively) in pelagic environments. Considering Lake Garda, the largest Italian water basin, toxin measurements conducted in the last decade with a monthly frequency indicate a constant presence of both microcystins and anatoxins, yet at concentrations well below the safety thresholds indicated by the World Health Organization. Moreover, in this time span, anatoxin-a has become dominant, reaching annual maximum concentrations even two orders of magnitude higher than microcystins. However, a recent investigation, conducted in the frame of the Eco-AlpsWater project (financed by the Interreg Alpine Space programme), has revealed the presence of cyanotoxins also in benthic samples; in particular, remarkable quantities of anatoxins have been found in biofilms collected from rocks in different sites of Lake Garda shores. Considering that benthic cyanobacteria can grow in high abundance in mats, anatoxins can reach dangerous concentrations in this material and constitute a potential threat for people and animals nearby

Assessing the effects of water level variations on the copepod assemblages of the littoral zone of Lake Maggiore

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In this study, we aimed at assessing the effects of water level variations (± 1.06 m) on the copepod assemblages of the littoral zone of Lake Maggiore using both a taxonomy-based and a trait-based approach. To this end, we carried out an intensive sampling survey in three water level periods (high, medium, and low), in three sites (Bolle di Magadino_CH, Fondo Toce_IT and Sesto Calende-Angera_IT) and in two habitat types (dry and wet) in the summer of 2019 and 2020. The results showed that the water level variations had a relevant effect on both the taxonomic composition and the functional traits of the copepod assemblages. In particular, we assessed that the copepod abundances, body size and biomass, as well as the abundances of ovigerous females, grazer and scraper species, were higher during the high-water level period than in the periods with medium and low levels. On the contrary, in the low-level period, there was a clear dominance of omnivorous and deposit-feeder species. This pattern was, although weakly, partly determined by N-NO₃ concentrations that varied significantly during the high, medium, and low levels. The study was funded by the INTERREG ITALIA-SVIZZERA project "PARCHI VERBANO TICINO - ID481668".