



Can the teleconnection indices explain the interannual variability of Daphnia phenology ? A case study in Lake Iseo, northern Italy.

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In the last years, increasing interest has been shown on the impact of inter-annual climate variability on zooplankton. Several teleconnection indices have been successfully applied in order to explain inter-annual variations in zooplankton and phytoplankton seasonal dynamics. During the winter months (December-February), the East Atlantic pattern (EADJF) and the Eastern Mediterranean Pattern (EMPDJF) showed a clear relationship with the variables directly connected with the winter climate and limnological variables in the large lakes south of the Alps. A recent study carried out in the lakes Maggiore and Garda confirmed that the impact of the winter large scale atmospheric patterns was detectable also on the phenology of Daphnia populations. We extended the same approach to zooplankton of Lake Iseo, the fourth largest and deepest Italian lake, with constant characteristic of meso-eutrophy during last decades. We analysed data from 1998 to 2012, focusing on population dynamics of Daphnia sp., the most important larger filter feeder in this lake. The results showed a link between the interannual climate fluctuations and the development of Daphnia. Our observations are consistent with the patterns obtained in the lakes Maggiore and Garda. Overall, the results confirm that these indices may help to detect and predict the effect of the impact of climate change on populations and freshwater ecosystems.