

**WATER LEVEL FLUCTUATION - A CHALLENGE FOR MACROPHYTE SPECIES!**

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The research of macrophyte species temporal distribution was carried out at Lake Cerknica from 2001 to 2004. Lake Cerknica, appearing at the bottom of the karst field, Cerkniško polje, is neither a lake nor a terrestrial ecosystem. Usually in spring and late autumn, when the polje changes into a lake, the water reaches its normal level of 500 m a.s.l. and a surface of 25 km<sup>2</sup> is flooded. The previous researches in Lake Cerknica have indicated that the temporal variability of water regime is of great importance for the resilience of the ecosystem. The aim of our study was to monitor the presence and abundance of macrophyte species at three locations with different water regime. The survey took place in four subsequent years with different distribution of precipitation that significantly influenced water regime in the vegetation season. The research was carried out 2-4 times a month on the plots of 500 m<sup>2</sup> at each location. Macrophyte species, their relative abundance and temporal distribution were monitored. The water level fluctuations present a driving force for nutrient cycling and energy flow and also a limiting factor for the growth, development and reproduction of plants. The success of plants in the extreme environment of intermittent Lake Cerknica depends mainly on their ability to tolerate water level fluctuations. Four groups of plants were distinguished according to their phenotypic plasticity to variable water regime: truly aquatic species (1); the species exhibiting an amphibious character, with the same assimilation surfaces in water and in air (2) or with different assimilation surfaces in water and in air (3) and helophyte species (4). The plants exhibiting an amphibious character prevailed over truly aquatic or helophyte species. The number of species, their occurrence and abundance varied among years and locations according to their ability to express the amphibious character. Since water level fluctuation is a characteristic feature of the intermittent Lake Cerknica even under extreme conditions macrophyte biodiversity is not severely decreased. Extreme or irregular water fluctuations may disturb the growth and development of macrophyte species temporarily, when the fluctuations are not in accordance with the phenology of plants.