



## **ABSTRACTS**

**SIL-Austria Meeting, October 14 – 16, 2015**

**at the NEW Biological Station at Lake Neusiedl, A-7142 Illmitz**

<http://www.burgenland.at/natur-umwelt-agrar/natur/biologische-station-neusiedler-see/>

**"Limnological research in and around the  
European Alps –  
a common effort for a common future"**

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### **Planktonic community responses to environmental changes in Lake Garda since the Middle Ages**

A paleolimnological approach was applied to Lake Garda, the largest Italian lake (368 km<sup>2</sup>), to evaluate the lake vulnerability respect to human stressors within the current climate change. Two short sediment cores were collected from the deepest NW basin (350 m) and shallower SW basin (81 m). Radiometric dating indicates an age of ~700 years for both the cores. Diatom assemblage revealed stable oligotrophic conditions and a dominance in *Cyclotella comensis* until the 1960s, while the upper sections showed an increase in mesotrophic pennate colony-forming Fragilariaceae, due to the moderate nutrient enrichment. To integrate diatom results and compare long term changes in the pelagic and in the littoral zone, two deep cores and an additional littoral core (30 m depth) of the shallower basin were analysed for cladocera remains. The three cores showed comparable temporal trends. In the lower core sections they presented a great variety of species and the dominance of Chydoridae until the 1960s, while *Daphnia* sp. and *Bosmina* sp. were the most abundant taxa in the upper sections. To identify patterns in the temporal evolution of sub-fossil diatom assemblages and cladocera remains, a non-metric multidimensional scaling (NMDS) was performed for each core separately. A vector fitting analysis was applied to the sample scores on the NMDS configuration to investigate the influence of different limnological and sediment-inferred factors on the cladocera community composition. The study confirms the strength of the multi-proxy paleoecological approach in complementing and interpreting limnological investigations and ecological changes at secular scale.