# XXV Congresso AIOL

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Contributi innovativi dell'oceanologia e della limnologia alla conoscenza, al recupero e alla salvaguardia delle risorse acquatiche minacciate dai cambiamenti globali

Strumenti e approcci innovativi nelle scienze acquatiche in un mondo che cambia

SESSIONE SPECIALE 5 – Ecosistemi acquatici freddi: fortezze di biodiversità sotto il fuoco del cambiamento globale – Monica Tolotti, Andrea Lami, Gianpaolo Rossetti

## Long-term ecological evolution of a high-altitude lake in the Central-Eastern Italian Alps as showed by palaeolimnological proxies

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High-altitude lakes are particularly susceptible to climate change and anthropic impacts that modify the ecosystem environmental features and trigger the response of the biota. Palaeolimnological studies based on the analysis of proxies preserved in lake sediments aim at reconstructing the ecological evolution of lakes and surrounding environment at secular to millennial scale. This allows to evaluate the lake response to various external influences and to formulate hypotheses about future ecological evolution. We analysed two parallel cores sampled from a high-altitude lake located in the Ortles-Cevedale Group in the Central-Eastern Italian Alps (Lago Marmotte). A small glacier occupied the upper part of the lake catchment until the 1970s, while currently only discontinuous permafrost is still present. The aim of the present study was to verify whether the recent deglaciation of this Alpine catchment led to lake ecological changes that are preserved by sediment proxies, in particular stable C and N isotopes of sediment organic matter, and subfossil algal pigments and diatoms. The results show that the lake underwent two major environmental and ecological changes, i.e. after the end of the Little Ice Age (~150 years ago) and during the last 40 years, after the acceleration of the global warming.