



Conference Abstract

# Lake sedimentary DNA to reveal long-term changes in aquatic biodiversity and ecosystem functioning

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## Abstract

The emergence of molecular analyses based on the sequencing of sedimentary DNA has opened up many new areas of inquiry in paleolimnology. DNA preserved in sediments (S edDNA) offers the possibility to consider taxa that were traditionally not accessible because they do not leave distinct morphological fossils.

Recent applications that considered a diversity of biological groups (including bacteria, protists, zooplankton, fish) illustrate how efficiently SedDNA-based methods complement both classical paleolimnology proxies and limnological data. The knowledge gained from this approach is very diverse in scope, ranging from quantifying natural variability in population and community dynamics to understanding how these biological variables respond to anthropogenic disturbances and climatic change. The use of lake sedimentary DNA to track long-term changes in aquatic biota is a rapidly advancing field of research.

Based on recent applications, this presentation illustrates (i) the potential and challenges associated with the study of S edDNA to address critical research questions in lacustrine ecology (ii) the main methodological precautions to be taken into account for implementing these types of DNA analyses (i.e. best practices) and (iii) the emerging topics that could be addressed using sedimentary DNA, in particular to reconstruct the temporal dynamics of lacustrine biodiversity.

**Keywords**

lake, paleorecords, sedimentary DNA, biodiversity, plankton, micro-eukaryotes

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