



Provincia di Lecco



# XXVII Congresso AIO L

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*Acqua: elemento vitale, risorsa essenziale  
Condividere le conoscenze per affrontare il cambiamento*

### Abstract Book



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## Do dissolved heavy metals enter the food webs of alpine streams?

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### ABSTRACT

The Euregio project “ROCK-ME”: Geochemical response of Alpine Rock Glaciers to global warming” investigates the origin, export, and ecological effects of trace elements in river networks affected by rock glacier thawing and glacier retreat. Permafrost degradation and glacier recession can cause elevated export of solutes, including heavy metals, into river networks while the contribution from groundwater is often negligible. However, the ecological effects remain understudied. We assessed if and how trace element enrichment causes biomagnification processes in the aquatic organisms by characterizing the foodwebs of different stream types (intact and relict rock glaciers, and reference spring draining an area without periglacial landforms/glaciers/permafrost) with  $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$  isotopic ratios analysis and measuring the content of trace elements in each component of the foodweb. The investigation was conducted in 2022 in two catchments in South-Tyrol: Lazaun and Madritsch/Madriccio Valleys. The analysed matrices were: CPOM, FPOM, epilithic biofilms, bryophytes, and benthic invertebrates of different taxa characterized and grouped by feeding habit (omnivore, carnivore, herbivore, detritivore). The same trace elements were measured in the water of each stream type. As expected, most of the biomagnification occurred in streams originating from intact rock glaciers.