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*Conoscere gli ecosistemi acquatici
per riconnettersi alla natura*

Abstract book



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O.4.2 - Diatom diversity and abundance in Alpine headwater of different origin: differences and possible future trends.

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In the European Alps, around 80% of glacier volume is predicted to vanish within this century as an effect of global warming. Within this scenario, mountain permafrost is becoming increasingly relevant since the degradation of subsurface ice occurs at slower rate than surface glacier ice. The most common evidence of mountain permafrost are the rock glaciers, i.e. rocky landforms made of mineral debris that host subsurface ice. Despite the increasing evidence that permafrost degradation can affect the chemical quality of Alpine headwaters by increasing the concentrations of ions and trace elements, little is known about the possible effects on aquatic biodiversity. Moreover, it is not clear whether primary producers of permafrost-fed headwaters develop during Windows of Opportunity (WOs), i.e., short periods of favourable environmental conditions, as typically observed in other Alpine headwaters. We addressed these issues within the Euregio project "Rock-me" (2022-2025, <https://rock-glaciers-euregio.fmach.it/>), by investigating water chemistry, biofilm organic and chlorophyll-a content, and abundance and taxonomical composi-

tion of epilithic diatoms of streams fed by glaciers, rock glaciers and groundwater in two deglaciating Alpine catchments in Central-Eastern Italian Alps. We found evidence of WOs in all the surveyed water, with higher diatom density either in early or late summer.