

INTERNATIONAL MOUNTAIN CONFERENCE

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>> SYNTHESIZE MOUNTAINS OF KNOWLEDGE <<

Submitted Abstract

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First Author First Name Last Name	Alberto Scotti
Submitting Author First Name Last Name	Alberto Scotti
Correspondence	alberto.scotti@eurac.edu
Co-Authors >> E-Mails will be not listed	Marsoner, Thomas; Klotz, Johannes
Organisations	Eurac Research, Italy
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imc2022@uibk.ac.at +43 512 507 54442



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Abstract

Several anthropic activities such as agricultural practices, wastewater disposal, or de-icing operations of roads are continuously increasing the salinity of freshwater habitats. The rate at which freshwater salinization is currently rising caused some scholars to identify it as one of the primary drivers in shaping benthic macroinvertebrates communities. In this study, we evaluated the composition of benthic macroinvertebrate communities in four catchments, located in the Italian Central-Eastern Alps, which have been sampled with monthly frequency during the winter season (from December to March). The catchments were selected to be geographically close - bordering each other - and very similar in terms of surface area and overall water discharge, but they greatly differ in the potential detrimental effects that application of salt for de-icing could have on the riverine ecosystems. Indeed, the catchments vary with regard to the number of kilometers of roads present within their boundaries, and in terms of the proximity of the roads to the river network present in the catchment. We developed an index able to quantify the salinization risk of each

point in the river network of each catchment based on distance from the road and topography of the terrain. Concurrently, we assessed the salinity effects on the freshwater habitats using a recently developed index that makes use of the bioindication power of benthic macroinvertebrates.

The two indices exhibit concordant results, and showed that, despite the different risk of salinization of our catchments, a significant impact of salt application could not be detected on the freshwater habitats under study.

Research Area Mountain Regions Innrain 52f 6020 Innsbruck Austria WWW.IMC2022.INFO

imc2022@uibk.ac.at +43 512 507 54442