

Trend of POP concentration in high altitude streams. What's for? Need to overcome limits of ecotoxicology.

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Many international and national projects like IPCC (Intergovernmental Panel on Climate Change), AMAP (Arctic Monitoring Program), ACIA (Arctic Climatic Impact Assessment) and RICLIC WARM (Regional Impact of Climatic Change in Lombardy Water: Resources and Modelling) highlight the relevance of contaminant effects in higher latitude/altitude systems. But are ecotoxicologists really able to predict the effect of contaminant interaction with such sensitive ecological systems?

A multi- year sampling campaign in glacial fed stream was conducted in central Alps in order to understand the magnitude and temporal variability of POP fluxes from glaciers to the surrounding freshwater ecosystem. Evidence of bioaccumulation in macroinvertebrate community is also obtained. In literature evidence of endocrine disrupting effect on fish is reported.

For a better understanding of the real impact of these evidences on the actual health of the ecosystem there is the need for an innovative ecotoxicological approach: from simply describing phenomena to developing a knowledge-driven theory. It should embracing the concept of a biological community as an assemblage of individual receptors, organised in a response hierarchy from the level of the genome to phenome. We need to increase our understanding of the morphological, physiological and ecological factors underlying organisms sensitivity, to allow us to predict organisms response. This will require a combination of skills and expertises.