

POSTER PRESENTATIONS

6. Macroinvertebrate community structure and sediment bioassay results from three Italian lotic systems

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In the last decades, biological monitoring of running water systems has become increasingly important and, in most countries, it has become an indispensable complement to traditional chemico-physical techniques in the evaluation of human impacts. In this context, the analysis of benthic macroinvertebrate community and the use of bioassays are among the most utilized tools, due to their differing sensitivity to changes in both chemical characteristics of the water column and physical properties of habitats, but at the moment few studies have approached the study of lotic systems utilizing both methods. In this study we report the results of the coupled application of bioassays and community ecology in three Italian lotic environments: Bormida river (prime example of contaminated area

of the Northern Apennines), Regi Lagni and Sarno (that are among the largest and most contaminated rivers of southern Italy). Some Biotic Index were used to describe macroinvertebrate taxonomic richness and diversity, while bioassays were realised utilising a battery of organisms, such as *Daphnia magna*, *Vibrio fischeri*, *Pseudokirchneriella subcapitata* and the innovative and highly sensitive *Dictyostelium discoideum*.

In Bormida, bioassay responses and alterations of macroinvertebrate communities were closely related each other, highlighting biological problems at different scales (from sublethal to biodiversity loss). Interestingly, in the Regi Lagni and Sarno benthic community was severely altered, while bioassays gave results slightly discordant: this difference could be caused by the huge organic load of this river. The resulting sediment hypoxia/anoxia had a different impact on different ecological levels. Our work indicates that a multi-level approach is an effective tool in environmental monitoring, allowing detection and deepen and better understand the conditions of the matrix river.

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