

Ecological classification of water systems in the Julian Alps and Karavanke belt (Slovenia) using spring biota

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Abstract

The Julian Alps and Karavanke mountain belt are extremely rich in water sources and can serve as potential source of drinking water in the future. The ecological assessment and characterization of groundwater ecosystems in this area is needed together with identification of vulnerable water systems endangered by extensive human use and climate change impacts. The study is carried out within the European project "Water Management Strategies against Water Scarcity in the Alps (Alp-Water-Scarce)", with starting date of October 2008. The first part of the project involves collecting of existing spatial data on water and land use in this area. The second part of the project includes the selection of reference sampling sites – springs. Two methodological approaches will be used: (1) sampling of springs as "access points" that can be used to collect the groundwater fauna living in aquifer studied, and (2) sampling of spring fauna, where springs will be considered as special habitats with little oscillation in temperature through the year. In order to obtain representative data sampling of invertebrates will be conducted in spring and autumn season. Field and laboratory measurements will include measurements of the most important environmental factors (temperature, conductivity, oxygen, nutrient contents). Distribution of groundwater and spring fauna will be analysed, indicator species identified and vulnerability maps supplemented by faunistic data. The results will contribute to the better knowledge of aquatic biodiversity, water quality and quantity and pressures due to human use and climate change impacts in the Julian Alps and Karavanke belt, and could be used in future conservation and management plans.

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