

Inland aquatic bioregions of Mediterranean climate region of Slovenia; biodiversity and possible climate change impacts

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ABSTRACT

1. The relation between biodiversity and climate change trends and other human-induced environmental changes in five bioregions of the Mediterranean climate region of Slovenia were studied.
2. For each bioregion running water ecosystem diversity was defined as number of natural river types. Types of running waters were derived as combination of most important ecological characteristics affecting aquatic organisms. One of the ecological characteristics describing river types was also a periodicity dividing permanent and intermittent streams.
3. In addition to the ecosystem diversity a species diversity of benthic invertebrate communities was defined for the each bioregion.
4. Four species diversity measures were calculated: number of taxa, number of EPT (Ephemeroptera, Plecoptera, Trichoptera) taxa, Shannon diversity index (H') and Evenness (Pielou's).
5. A significant statistical difference between permanent and intermittent rivers was observed for three species diversity measures, but not for Shannon diversity index.
6. Based on the observed differences in biodiversity measures, possible impacts for the ecosystem and the benthic invertebrate species diversity are discussed.
7. It seems that in some cases at the bioregional scale climate change and human-induced activities can cause a rise in the ecosystem and species biodiversities.

KEY WORDS: Benthic invertebrates, bioindicator, diversity, drought, ecosystem diversity, river types, species in intermittent streams.