On the ecological status of headwaters within the Adige catchment (Italy)

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High-altitude aquatic ecosystems are characterized by low biodiversity and are therefore less resilient to pollution, hydrological alterations and climate change than lowland streams. Therefore, the ecological status of Alpine river systems can be easily altered by such climatic and anthropogenic stressors. In this work, we will focus on the river Adige, where strong variability of water fluxes induced by hydropeaking along with the occurrence of pollutants have been identified as a major issues for the preservation of ecosystems. Anthropogenic activities such as hydropower production, agriculture and industrial production, have to be taken into account in order to investigate how the aquatic communities react to the related forcing factors. For example, recent studies performed in the stream Noce Bianco, a tributary of the Adige River, have shown the negative impact of hydropeaking, on the riverine ecosystem, highlighting a reduction of taxa diversity and abundance of some aquatic species. An extensive literature review of published data have been performed in order to provide a detailed picture of the ecological status of the entire catchment. The aim of this work is to analyze the available dataset, in order to identify the main stressors impacting on the aquatic systems, to characterize their relevance and their occurrence within the Adige river basin.