

## **ABSTRACT**

The specifics of glacial streams, as streams fed and influenced by mountain glacier are very tough conditions which, in these alpine habitats, last all year long. Typical features of a glacial stream are cold temperatures, oligotrophic water, high flow rate which is connected to a very good oxygen saturation and the stream level fluctuations, not only visible during the whole year, but also in a scope of a few hours during one day. Therefore populations of organisms living in these habitats have to be sufficiently adapted to such harsh environment, in order to not just survive local harsh conditions, but effectively use them to reproduce and inhabit the limited space. This thesis is focused on benthic communities of these water bodies and is a summary of knowledge from studies done mainly in Italian, Austrian and Swiss Alps. Seasonal influence of the glacier and the influence of climate change on the fragile communities inhabiting glacial streams in higher altitudes is then discussed as well as the types of streams in the alpine zone dividing said streams into several types, first into three main types according to their water source and later on into more specific types of the Alps streams according to their bed rock and other geographic variables. Glacial streams are nowadays the subject of research connected with the research of climate change and its influence on alpine streams species assemblages, thanks to their immediate contact with glacier mass, which is a great (and relatively fast, compared to low altitude water bodies) marker of global climate change. The choice of periphyton as model organisms is supported by their short generation time, which allows researchers to monitor environmental changes in present time without the need to wait for response of the macroorganisms (flora and fauna both) whose generation time is distinctively longer. Big role in the advantage of using periphyton species is also in the fact that these species are very good bioindicators of many factors influencing the stream.

**Key words:** climatic changes, spatial heterogeneity, temporal dynamics

