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### Abstract Book



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## **Identification of reliable metrics to assess the effects of trout farming on biological water quality in Alpine rivers (Trentino Province): integration of morphological and DNA metabarcoding approaches**

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### **ABSTRACT**

Fish farming can affect the quality of receiving watercourses through nutrients, organic matter, and suspended solids enrichment as well as through the release of drugs and chemicals. Trentino Province is one of the most important producers of salmonids in Italy, with about 60 farms, mainly producing rainbow trout (*Onchorhynchus mykiss*). The Filiera ASTRO's Project "*Competitività e Sostenibilità dell'Acquacoltura di Montagna*" (supply chain contract) funded by MASAF (Ministero dell'agricoltura, della sovranità alimentare e delle foreste) aims to improve the sustainability and economic value of mountain aquaculture. Within this framework, biological and chemical analysis will be carried out in water courses upstream and downstream of trout farms' effluents. Biological monitoring of macroinvertebrate and periphyton communities (with a focus on diatoms) will be carried out via both morphological and molecular (environmental DNA - eDNA) approaches. Specific aquaculture impacts and efficacy of mitigation measures (e.g. filters, sedimentation tanks) will be assessed by applying both established and candidate water quality metrics. The latter will be used to obtain or confirm environmental certification of good practice, thus providing a cost-effective and reliable tool for better management of sustainable aquaculture.