XXV Congresso AIOL

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Contributi innovativi dell'oceanologia e della limnologia alla conoscenza, al recupero e alla salvaguardia delle risorse acquatiche minacciate dai cambiamenti globali

Strumenti e approcci innovativi nelle scienze acquatiche in un mondo che cambia

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Application of a Random Forest *a-posteriori* classification to predict multiple stressors impacts on benthic function and diversity of a river network

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Expert knowledge is increasingly used in conservation science to classify dynamic and complex ecosystems, while overcoming typical data-limitations. Based on the expertise of field operators from the local Environment Agency, we classified 160 stream sites in Trentino according to the presence of known hydrological, morphological and chemical alterations, including also sites in reference conditions and sites without significant alterations. We then used machine learning approaches to examine the degree to which a-priori expert classification matched a Random Forest *a-posteriori* data-driven classification based on the taxonomic and functional composition of benthic macroinvertebrates. The match between the two classifications was only partial. While stream sites in reference conditions were correctly classified, discrimination between hydro-morphological and chemical alterations was often poor. This suggests that indicators based on macroinvertebrates taxonomic and functional classification used to assess the ecological status of streams in mountain areas, can assess the overall stress of a waterbody, but they show poor sensitivity to specific stressors, with relevant outcomes for the water management of Alpine running waters.