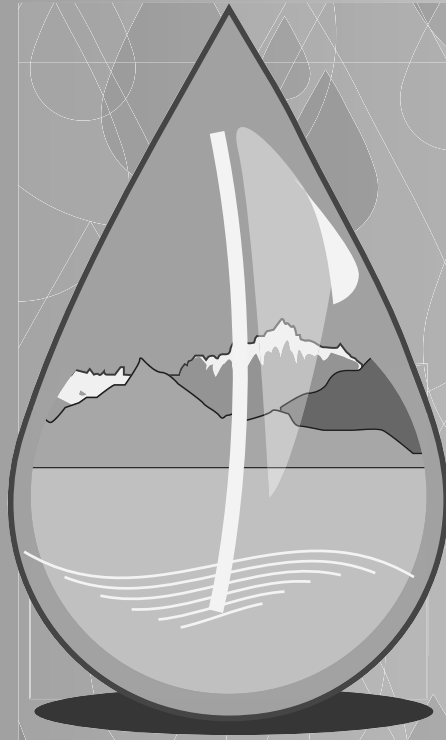


# ABSTRACT BOOK



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## AN ECOSYSTEM SERVICE APPROACH TO LICENSE NEW RUN OF THE RIVER HYDROPOWER PLANTS

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Freshwater ecosystems provide several services (ES) to society. Hydropower production is one of the most relevant ES supported by Alpine rivers, and it is often in conflict with other river uses and services. Recently, the demand by local authorities, public or private agencies for new small hydropower plants have been increasing, and new conflicts have been arousing. We propose an approach to model the alterations of selected ES which integrates hydrological and habitat models and evaluates possible variations of the selected ES under different withdrawal scenarios. The case-study is the Noce River, a gravel-bed river in the Italian Alps (Trentino, North East Italy) which is subject to hydropeaking. We selected four ES: habitat for juvenile and adult marble trout as biodiversity proxy, rafting as recreational services, and small hydropower production as provisioning service. We evaluated the variations of these services for maximum and no hydropower production, chosen as different boundary conditions. Moreover, we simulated the presence of four new different small hydropower plants with increasing withdrawals. Large hydropower is the key driver, affecting all the selected ES. Small hydropower decreases the potential for rafting up to 64%, while it is often negligible for other services.