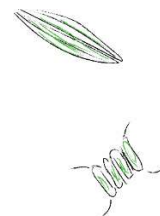




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ABSTRACT BOOK



SS1_O10_Role of the hyporheic zone in mountain streams progressively shifting from naturally perennial to intermittent systems

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Aim of this study is to explore the impact of intermittence in previously-perennial Alpine stream reaches, where the aquatic communities lack strategies and adaptations to survive the hydrological and physico-chemical changes caused by droughts. We investigated specifically the role of the hyporheic zone in increasing the resilience of these aquatic systems to drought. A first site was selected the headwaters of the Po River (NW Italy) with two stations (one perennial, one intermittent) with piezometers installed in the riverbed, instrumented with temperature and pressure dataloggers, where we monitored two suprasedasonal droughts over a period of two years. A second site was chosen in the Po Plain (N Italy), where we monitored three tributaries with a gradient of intermittence at short-time intervals (3 days) during a drought event in summer 2018. We collected hyporheic fauna with a Bou-Rouch pump, used hyporheic meio- and macro-invertebrate composition, abundance, functional groups to assess the use of the hyporheic zone as a refuge from drought. The hyporheic and benthic communities responded quickly to the onset of the drought; as expected, where water is permanent, the hyporheic communities are abundant; conversely, increasingly harshness (i.e. reduction of the water table) affects hyporheic communities and increases the use of the hyporheic habitat as a refuge by benthic taxa. This research was conducted within the framework of the project PRIN NOACQUA “Risposte di comuNità e processi ecOsistemici in corsi d'ACQUA soggetti o intermittenza idrologico” – code 201572HW8F_003, funded by the Italian Ministry of Education, University and Research.

