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Book of Abstracts

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Global patterns and predictors of microplastic occurrence and abundance in lentic systems

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The majority of microplastic research has focused on seawater, with fewer than 4% of microplastics-related studies occurring on freshwaters. The limited available information suggests that the abundance of microplastics in freshwaters is often as high or even higher than marine environments. However, comprehensive investigations on occurrence and fate of microplastics in freshwaters are scarce and highly fragmented, partly because detection and identification of microplastic particles is rather complex. In addition, up to now, harmonized and standardized protocols for the sampling and analysis of microplastics in freshwaters do not exist, and studies with different research aims and hypotheses often report unstandardized results, making comparison among studies difficult. In the present study, we performed the first global standardized sampling and analysis effort to investigate the occurrence and distribution of microplastics in surface water of lakes and reservoirs with different anthropogenic impacts. Participants aim to collect water samples of freshwater systems with different features (e.g., area, depth, thermal behavior, watershed), following a common protocol. This

establishes the collection of samples by horizontal trawling of a plankton net and, after treatment with hydrogen peroxide, the polymer identification through micro-Raman spectroscopy. This GLEON project will allow obtaining comparable data about microplastic contamination in different freshwater systems around the globe. With this global dataset, our goals are to determine whether a relationship exists between the abundance of microplastics and the waterbody/watershed attributes and understand which factors are likely to influence the occurrence of microplastics in surface water of lentic systems.