

Are citizen science projects useful for studying complex processes such as lacustrine groundwater discharge?

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Lake eutrophication is still a severe problem in many parts of the world, commonly due to anthropogenic sources of nutrients such as fertilizer, manure or sewage. Improved quantification of nutrient inputs is required to address this problem. One potential input path for nutrients is lacustrine groundwater discharge (LGD). However, due to unawareness, extreme aquifer heterogeneity and immense time and costs of representative investigations that input path has often been neglected. Citizen science projects might be helpful to address these problems, since they have the potential to raise public and personal awareness of the problem and cope with the heterogeneity by a large number of samples. In the present contribution we present two examples of citizen science projects in Germany addressing LGD: (1) At Lake Arendsee local citizens collected a large number of groundwater samples from their private wells and contributed to an unprecedentedly detailed picture of nutrient concentrations upstream of the lake. (2) In the project "Tatort Gewässer" people all over Germany collected surface water samples from different water bodies. Stable water isotope concentrations in lake samples were used to identify lakes in which groundwater is an important component of the water balance.