



Intensive measurements provide new information on nutrient leaching and erosion processes in the Yläneenjoki catchment, SW Finland

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Lake Pyhäjärvi (154 km²) is the most important lake in SW Finland. The nutrient load of the lake exceeds its tolerance limit, and new tools are required to develop strategies for reducing nutrient loading from agriculture. One of the aims of the new CatchLake project is to develop environmental measuring technology, and to utilize intensive water quality measurements from on-line sensors in process-based catchment models. Intensive measurements in the Yläneenjoki catchment of the lake also provide valuable information on leaching/erosion processes as well as more accurate nutrient load estimates. The deficiencies of the manually sampled data, i.e. low sampling frequency, were clearly demonstrated. This is especially true in climate-change induced mild winters, when the periods of high runoff and transport may occur during any time between November and April, instead of during the predictable spring-flood period. In such cases, automatic continuous data recording is superior to traditional sampling schemes, but cannot replace manual sampling. New approaches are needed to develop efficient water quality monitoring schemes for changing climatic conditions. Uncertainties in load estimates, environmental measuring technology and new challenges for monitoring are discussed.