Appropriate determination method of removal efficiency for nonpoint source best management practices

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ABSTRACT

In Korea, best management practice (BMP) pilot facilities were installed to manage nonpoint source (NPS) pollution from the watershed areas. These BMPs are consistently monitored to determine the accurate pollutant removal efficiencies. However, the difficulty of removal efficiency determination in NPS BMPs is generally caused by uncertainties of site and storm characteristics. For that reason, removal efficiency determination has to apply appropriate method to eliminate uncertainties. In this study, the monitoring program was performed during 3 years in order to verify the efficiency of the infiltration trench during storm events. The pollutant removal efficiency was determined by four different methods namely the efficiency ratio (ER), summation of loads (SOL), regression of loads (ROL) and rainfall of frequency (ROF) methods. In comparison to other methods, the ROF method uses the rainfall frequency which is practical to eliminate uncertainties of NPS. Therefore, the ROF method is suggested as the appropriate method to determine the removal efficiencies and optimum among the four methods.

Keywords: Nonpoint sources; Best management practices; Efficiency ratio; Summation of load; Regression of load; Rainfall of frequency

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