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Water quality in Lake Soyang watershed affected by sediment runoff from a highland agricultural region

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In the wet season, a large amount of suspended sediments (SS) are discharged into Lake Soyang because of sediment erosion from highland fields. Important multiregional water sources are located in the lower Han River and the suspended sediments of the Lake Soyang affect the water quality of the water supply. This rainfall-runoff survey was conducted three times at each of the survey points. In the case of the Jaun area of Hongcheon-gun, the Jungjohangcheon, and Johangcheon, the upper part of the Jaun area is identified as a dense area of highland fields. The rainfall-runoff characteristics and the first flushing in the Jaun area were analyzed using the pollutograph and the mass-volume curve. From the Ministry of Environment's water quality measuring network, the changes on SS, BOD and TN concentration in the Soyang River watershed were analyzed with the yearly rainfall depth. Between 2012 and 2015, due to a low amount of rainfall, the three point's SS and TP concentration was low. It appears that the reason for the low TP concentration was due to a light precipitation during the year, resulting in low amount of nutrient runoff from the highland fields. Otherwise, the BOD (the index of the organic material) concentration was high because of the reduction of the stream flow on 2012, 2014 and 2015 when the rainfall depth was small. SS, BOD and TP from Soyang River, Naerincheon, Inbukcheon appears to be influenced by rainfall depth.

Biography

Jae Heon Cho is a Professor of Department of Biosystems and Convergence Engineering at the Catholic Kwandong University, South Korea. His main research area is water quality management and modeling. His representative published articles are: Watershed model calibration framework developed using an influence coefficient algorithm and a genetic algorithm and analysis of pollutant discharge characteristics and load reduction in a TMDL planning area (*Journal of Environmental Management* 2015, 163, 2-10), A river water quality management model for optimizing regional wastewater treatment cost using a genetic algorithm (*Journal of Environmental Management*, 2004, 73, 229–242).

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