PA-1.

Review of 2-year experimental data from water quality improvement of inflow stream in estuary using wetland

인공습지를 이용한 하구담수호 유입하천수의 2년간 실험결과 검토

Koo won seok 구 원 석
Konkuk university 건국대학교

Wetland systems are widely accepted natural water purification systems around the world in nonpoint sources pollution control. And Constructed wetlands have become a popular technology for treating contaminated surface and wastewater. In this study, the field experiment to reduce nonpoint source pollution loadings from polluted stream waters using wetland system was performed from June 2002 to March 2004, including winter performance using four newly constructed wetland. Each size of wetlands is 0.8ha. Even during the earth work of cutting and filling to construct research facilities, reed roots penetrated meters deep are expected to maintain adequate vegetation of reed by natural propagation, therefore, additional plantation is not considered. Waters of Dangjin stream flowing into Sukmoon estuarine lake were pumped into wetlands. Inflow and hydraulic residence time of the system were $500m^3 \sim 1500m^3$/day, 2~5days respectively. After 2 years later plant coverage was about 70 %. Average water quality of the influent was BOD5 4.17mg/L, TSS 18.45 mg/L, T-N 4.32 mg/L, and T-P 0.30 mg/L. The average removal rate of four wetlands BOD_5, TSS, T-N and T-P during about two years was 5.6%, 46.6%, 45.7%, and 54.8%, respectively. Because of low influent concentration of BOD5, organic matter in sediment, and algae the removal rate of BOD5 was lower than other parameter. The surface wetland(SF) was satisfactory for treating polluted stream waters with good removal efficiency even during the winter period. First of all , in this case, cell 6 wetland the inflow concentration T-N, T-P are most highest than others 5.95, 0.35mg/L respectively. The removal rate T-N, T-P of cell 6 wetland most highest 56.6, 60.0% respectively. And the wetland removal rate of T-P was more effective about 10% than T-N. Performance of the experimental system was compared with existing data base(NADB), and it was within the range of general system performance.