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Biotic Approaches to the Biological Assessment of Water Quality in the North Branch of Han River System

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Biological evaluations of water quality in running waters were carried out in the north branch of the Han River system in Korea from April 1992 to March 1994, in order 1) to assess the spatial and temporal variability of water quality in unpolluted, moderately polluted and heavily polluted sites of the river by using the biotic indices and scores as well as quantitative indices and 2) to assess the ecological stresses as a result of pollutants on aquatic communities by using the biological monitoring methods with macroinvertebrates.

The following biotic and chemical indices were employed in order to compare their applicability to the ordinary streams in Korea: TBI, Chandler's scores-ASPT, BMWP-ASPT, BI and FBI models for biotic analyses; and NSFWQI and comprehensive chemical pollution indices for chemical analyses of water quality .

All of the pairings of biotic indices were significantly correlated with each other ($p < 0.001$); however, the values between BI and FBI/ROK (tolerance values assigned by Korean standards, firstly in this report) were highly correlated ($r = 0.84$).

As a result, at least BI model including not only indicator species concept, but also abundnace of taxa collected at a site, is recommendable for the bioassessment of running water quality in Korea.

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Ecological Stuides on Benthic Macroinvertebrates in the Suyong River : Effects of Municipal Sewage Control Program on Community Dynamics in the Lower Reach

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For the purpose of ecological assessment on the effect of municipal sewage control program conducted in the Suyong river around the 1988 Olympic game, benthic macroinvertebrates were collected in the lower reach from 1988 to 1991. The municipal control program included the construction of swage treatment plant, effort to decrease in sewage production, and various campaigns for environmental conservation at the watershed and stream area. Immediately before the initiation of the control program, no macroinvertebrates were collected. In January 1989, about 6 months after the operation of the sewage plant, however, eight species in Polychaeta and species in Amphipoda, Copepoda and Decapoda appeared abundantly at the downstream of the sewage plant. Among these *Capitella capitata* complex, a pollution resistant polychaete, was most abundant, followed by *Nebalia bipes*, a leptostracan. There was a great degree of variations in terms of species richness and abundance in communities during the study period. The Dominat species, *Capitella capitata* complex, generally peaked in winter. The appearence of benthic macroinvertebates implied the slight improvement of water quality after the sewage control program from the highly polluted state, isosaprobity, although the overall water quality in the lower reach in the Suyong river is still in polluted state.