

**Hydrologic influence on the zooplankton dynamics
in a regulated river: (Nakdong River Mulgum)**

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The zooplankton dynamics in the Nakdong River were analyzed simultaneously with a number of environmental factors during the period of 1994-1997. The seasonal variation of zooplankton taxa and abundance in the river were affected by both hydrologic regime and temperature. Three distinctive phases in hydrologic regime and temperature were identified (phase I: spring and fall(long residence time and moderate temp.), phase II: summer (short residence time and high temp.), phase III: winter (long residence time and low temp.) ($P < 0.01$, $n = 46-56$). Rapid increase in zooplankton abundance and biomass was observed in phase I (density: 1054 ± 1261 Ind./L, biomass: 156 ± 185 $\mu\text{gC/L}$, $n = 85$), but Shannon diversity index were low (≤ 1.3). Due to sudden changes in hydrology, high water temp., and frequent blue-green algal blooms in phase II, diversity and abundance of zooplankton largely varied. In phase III, even though long residence time (≥ 30 days) and high Chl. *a* concentration (≥ 20 $\mu\text{g/L}$; small diatoms consisted of more than 70-80% of phytoplankton communities) were maintained, the zooplankton abundance was low (≤ 100 Ind./L), mainly due to low temperature. These results suggest that hydrology and temperature were of main factors affecting the seasonal variation of zooplankton community structure in the Nakdong River.