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Longitudinal Difference of Zooplankton Grazing on Phyto- and Bacterioplankton in the Nakdong River (Korea)

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Microzooplankton (35-157 μ m, rotifers and nauplii, but protists were excluded) and macrozooplankton (>157 μ m, cladocerans and copepods) grazing on bacteria and phytoplankton were evaluated at two stations along the longitude of the Nakdong River. The lower site (RK 27; river km) was more eutrophic with much higher chl. *a* concentration and zooplankton biomass than that of the upper site (RK 175). At both sites bacterial carbon was lower (range: 52.5 - 66.1 μ g C L⁻¹) than phytoplankton carbon (range: 227 - 397 μ g C L⁻¹) and average microzooplankton biomass (range: 11.5 - 60.3 μ g C L⁻¹) was higher than macrozooplankton biomass (1.6 - 44.8 μ g C L⁻¹). The specific clearance rate (ml gdw⁻¹ d⁻¹) of microzooplankton on bacteria and phytoplankton was similar or higher than that of macrozooplankton at the lower station, while specific clearance rate of macrozooplankton on bacteria and phytoplankton were nearly two-fold higher than that of microzooplankton at the upper station. Phytoplankton carbon ingestion rates (μ g C L⁻¹ d⁻¹) to micro- and macrozooplankton were higher than bacteria carbon ingestion rates (μ g C L⁻¹ d⁻¹). Higher phytoplankton and bacteria carbon ingestion rate were estimated at the lower station, while phytoplankton and bacteria carbon ingestion rate to micro- and macrozooplankton were nearly six to twenty-fold lower than at the upper station, respectively. Overall, microzooplankton grazing was more important than macrozooplankton toward the downstream.

Keywords: Rotifers, Cladocerans, Copepods, carbon ingestion rates, clearance rates