

B417 **Spatial and Temporal Variation of Zooplankton Grazing on Bacteria and Phytoplankton in the Regulated Nakdong River**

Kim, Hyun-Woo¹, *So-Hyun Park¹, Soon-Jin Hwang², Kyong Ha¹, and Gea-Jae Joo¹

¹ Dept. of Biology, Pusan National University, ² Dept. of Agricultural Engineering, College of Agriculture and Life Science, Konkuk University

Grazing of two size classes of zooplankton (microzooplankton: MICZ, 35-157 μm ; rotifers and nauplii, but protists were excluded, macrozooplankton: MACZ, > 157 μm ; cladocerans and copepods) on bacteria and phytoplankton were evaluated seasonally at three sites (Mulgum, Jukpo, Waekwan) of Nakdong River. At all sites, average rotifer biomass was much greater than average cladoceran and copepod biomass, which attributed that greater algal and bacterial carbon (C) transferred to MICZ than MACZ in this river system. Zooplankton grazing on phytoplankton was generally much higher than that on bacteria. Overall, bacterial C-flux to zooplankton was greater in the upper part of the river than the middle to lower part. High zooplankton grazing on bacteria and phytoplankton in spring and fall was observed. The results of this study suggest that bacteria could be an important food source for zooplankton in Nakdong River, where rotifers play an important role in transferring bacterial C to zooplankton.

B418 **Ephemeropteran Community Structure and Spatial Stability of Local Populations of the Major Species Group in the Keumho River.**

*Lee, Sung Jin, Tae Ho Ro, Myoung Chul Kim and Il Byong Yoon
Department of Biology, Korea University

The study was conducted to analyze the community structure of mayfly and stabilizing points for the local populations along with longitudinal changes in the Keumho River, Korea. A total of 22 ephemeropteran species occurred in the riverine system during the sampling period (Oct. 1990 to Jul. 1993). The results indicated that *Baetis fuscatus* (mean density of 117.3 indiv. /m²), *Ecdyonurus levis* (54.1 indiv. /m²), *Uracanthella rufa* (51.3 indiv. /m²), and *Caenis* KUa (49.9 indiv. /m²) were consisted of the major species group. The results of statistical analyses also supported that these 4 species were distinguished from the others. Longitudinal changing patterns based on total species numbers and individual numbers were characterized into 3 phases. A new approach was applied to analyze stabilized points for local populations based on River Continuum Concept and density-dependent mechanism in population regulation. Stabilized local populations of *B. fuscatus* and *E. levis* populations occurred at the areas ca. 45 and 75 km away from the origin of the riverine system. *Caenis* KUa was locally stabilized at 40 and 60 km away from the origin. *Uracanthella rufa* showed only one stabilized local population ca. 80 km away from the origin. Diversity index (H') for the ephemeropteran community was compared with that calculated for the benthic macroinvertebrate community, and their similarity was discussed.