

University campus in downtown Seoul, and added to the 1.5 L transparent polyester bottles. Chlorophyll-*a* decrease in 8h experiment was not detected except for the C.I. treatment (12.1%). However, all the treatments of 24h experiment showed significant decrease of chlorophyll-*a*. U. d. treatment (87.2%) showed the lowest concentration among 24h treatments, followed by C.I. (84.1%) and C.f. (57.4%). The concentration of nitrite and ammonia were elevated in all mussel treatments of 24h experiment, but all the mussel treatments of 8h experiment showed decrease of these nutrients. The nitrite concentration decreased from 2.10 $\mu\text{gN}/\ell$  to 1.45 $\mu\text{gN}/\ell$ , 0.53 $\mu\text{gN}/\ell$ , and 0.53 $\mu\text{gN}/\ell$  in the C.f., C.I. and U.d. treatments of 8h experiment, respectively; however, it increased from 18.4  $\mu\text{gN}/\ell$  to 22.6  $\mu\text{gN}/\ell$ , 20.6 $\mu\text{gN}/\ell$ , and 21. $\mu\text{gN}/\ell$  in the C.f., C.I. and U.d. treatments of 24h experiment, respectively. In all the treatments of 8h experiment, significant decrease of ammonia was evident, but it increased in 24h experiment. Soluble reactive P(SRP) in all the treatments of both 8h and 24h experiment showed slight increase. Our results show that mussels had significant impact on algae biomass change followed by nutrient changes in the water column. Within the 8-hours of the mussel addition, nutrients tend to increase and mussel's grazing on phytoplankton is not observable, except for C.I. For 24h experiment, however, the increase of nutrient was observed coincidentally with the mussel's grazing on algae. Therefore, we suspect that mussel's fecal and pseudofecal might attribute to the increase of the nutrients in the water. Based on the algae grazing rate and nutrient release rate, in forms of feces and pseudofeces, *Corbicula leana* was the specie that grazed algae most actively with the least nutrient reproduction. Thus, among the three bivalves tested, *Corbicula leana* appeals to be the most appropriate species to apply for the water quality control in lacks and reservoirs with algal blooms.

### B418 Evaluation of Limnological Characteristics of an Unnatural Lake in the Metropolitan Area

Ho-Sub Kim<sup>1</sup>, Ku-Sung Park, Kwang-Hyun Choi and Soon-Jin Hwang

Department of Biological Systems Engineering, Konkuk University

The present study evaluated limnological characteristics of a lake in the metropolitan area from March to December, 2000, in order to understand limnology of unnatural type of lake and to establish management or restoration strategy of the lake(Lake Ilgam). Based on the annual mean chlorophyll-*a* (85.6  $\mu\text{g}/\ell$ ) and TP (75.7  $\mu\text{g}/\ell$ ) concentrations, Lake Ilgam was evaluated to be highly eutrophic. Sediment volume was large (mean depth: 50cm), and contained a large amount of nitrogen (TKN: 2,291  $\text{mgNH}_3\text{-N}/\text{kg}$ ) and phosphorus (TP: 349  $\text{mgP}/\text{kg}$ ). In contrast with high concentrations of TN and TP in the water column, nitrate and soluble phosphate concentrations were very low. Based on TN/TP or  $\text{NO}_3\text{-N}/\text{SRP}$  weight ratios, limiting nutrient for algal growth was seasonally changed. Cyanobacteria (*Lyngbya*, *Oscillatoria*, *Microcystis*) consistently dominated (>95% abundance, >60% biomass), except December when *Dictyosphaerium ehrenbergianum* dominated. Rotifers (*Keratella*, *Pompholyx*, *Brachionus*) and copepods (nauplii) were largely dominated zooplankton community, but filter-feeding cladocerans were very minor. We conclude that trophic condition and productivity of Lake Ilgam are under positive feedback, which is likely affected by long retention time, large volume of sediment, and unusual hydrology, so that lake restoration should consider these parameters. Also, the role of biological components, including macrophytes and fish, need to be evaluated.