

B407 Effect of omnivorous fish on the production of labile and refractory dissolved organic carbon by zooplankton excretion in eutrophic water: an experimental study using large outdoor continuous flow-through ponds.

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This study was to make clear how omnivorous fishes affect the production of labile(L-DOC) and refractory dissolved organic carbon(R-DOC) by zooplankton excretion, because adult fishes prey on relatively large size zooplankton, resulting in small size zooplankton community. Although particulate organic carbon(POC) and total DOC(T-DOC) concentrations in inflowing sand-filtered lake waters were almost constant(0.3 ± 0.1 and 2.7 ± 0.1 mgC/L) during the experimental period, significantly high net T-DOC concentrations were observed at low zooplankton biomasses in two ponds(4.4 ± 0.7 and 3.6 ± 0.5 mgC/L) with high fish density, while low net T-DOC concentrations were observed in two reference ponds(3.3 ± 0.3 and 3.2 ± 0.4 mgC/L) with high zooplankton biomasses. Higher L-DOC production rates(maximum 0.404 mgC/L/d) were obtained at low zooplankton biomasses due to high grazing pressure by fish, suggesting that small size zooplankton grazing activity was contributing to the production of L-DOC, although R-DOC production rates(maximum 0.085 mgC/L/d) in two ponds with high fish density were similar to those in two reference ponds and the ponds with low fish density. The present study showed that the presence of omnivorous fishes of more than 14.0gC/m³ would enhance L-DOC production by small size zooplankton excretion.

B408 Longitudinal distribution of zooplankton community in the mid to lower part of Nakdong River (1994-1997).

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Zooplankton as an important regulator of phytoplankton dynamics in the Nakdong River has recently been studied on a biweekly basis in the main channel (Mulgum, Namji, Jukpo, Koryong, Waekwan) and tributaries (Nam River, Hwang River, Kumho River). During the earlier growing season, strong grazing activities of zooplankton often appeared in the lower part of Nakdong River due to a longer hydrological retention. A strong seasonal pattern of zooplankton abundance was also observed in the main channel and a weak seasonal pattern of zooplankton abundance was observed in three tributaries during that time period. Among the zooplankton communities, rotifers (*Branchionus* spp., *Keratella* spp., *Polyarthra* spp.) were the dominant group. Cladocera and copepoda became abundant towards the end of spring and fall. The varied combination of chemistry and flow regime among these three major tributaries became a different environment for zooplankton. The abundance of zooplankton community toward the lower part of the river (Mulgum) was consistently higher than other sites.