

# **The relative abundance of benthic macroinvertebrates in relation to eutrophication processes in Lake Rawa Pening, Central Java, Indonesia**

Putra, I.N.N.S. (Institut Pertanian Bogor (Indonesia))

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## **Abstract**

Physico-chemical conditions (as supporting data) and benthic macroinvertebrates were studied in Lake Rawa Pening from May 1980 to April 1981. Samples of benthic animals and of physico-chemical conditions were collected at monthly and bi-monthly intervals respectively. Most of the physico-chemical parameters varied seasonally. Only the oxygen concentrations, pH and temperature remained fairly constant. There was a reduction in major nutrients around October. Greatest percentage reduction occurred during a noticeable algal bloom (September-October). Seasonal distribution of benthic macroinvertebrate communities varied in their number and biomass. The highest and the lowest densities were recorded in March (1609 individuals/m<sup>2</sup>) and June (175 individuals/m<sup>2</sup>) respectively. The highest and the lowest biomass were recorded in May (358.39 g/m<sup>2</sup>) and June (13.88 g/m<sup>2</sup>) respectively. Vertical distribution of density and biomass of benthic macroinvertebrate communities for all depths, ranged from 639 to 1207 individuals/m<sup>2</sup> and 29.52 to 82.34 g/m<sup>2</sup> respectively. A tendency existed for the number of individuals collected to increase with depth. The greatest value of biomass was found at 1-2 m depth, and the decrease was pronounced from 2-4 m. Of the 4 dominant groups of benthic found in Rawa Pening Lake were Oligochaetes, Chaoborus, Chironomids and Molluscs), the molluscs constituted the largest group (48-80 percent), except in October and January when they constituted only 12 percent and 29 percent respectively. According to the biological characteristics (phytoplankton and benthic communities), Rawa Pening Lake could be classified as an eutrophic lake.