Eutrophication Effects on Seasonal Patterns of Mesozooplankton in a Tropical Reservoir: A Four Years Study in Pampulha Reservoir, Brazil.

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The effects of increasing eutrophication levels on seasonal patterns of zooplankton organisms as well as on major chemical parameters were analyzed in a long-term study in Pampulha Reservoir, Belo Horizonte, Brazil. The temporal dynamics of major nutrients (nitrogen and phosphorus), chlorophyll-a, particulate organic carbon as well as major zooplankton organisms were investigated on a regular basis. Samples of water and planktonic organisms were taken every month between February 1993 and December 1995 and every two weeks in 1996. Temperature, dissolved oxygen and conductivity were measured *in situ* using Yellow Springs YSI devices. Zooplankton was collected with a Schindler-Patalas trap every two meters covering the whole water column. All nutrient analysis were performed using spectrophotometric methods.

This study showed that the reservoir's trophic status has been changing. Annual maxima of total phosphorus and conductivity increased steadily from 1993 to 1996. Nitrogen declined after macrophyte removal in 1994, but it increased again in the following years.

Zooplankton was dominated by *Daphnia gessneri*, *D. laevis*, *Diaphanosoma birgei* and *Thermocyclops decipiens*. *Daphnia*, cyclopoids and rotifers always peaked at the end of the dry season. Other organisms such as *Diaphanosoma*, *Moina* and *Scolodiaptomus corderoi* exhibited several population peaks during a seasonal cycle.

Recurrent seasonal patterns were confirmed by autocorrelation coefficients for most chemical and biological variables. The integrated biomass of the dominant zooplankter, *Daphnia*, also increased during the period covered in this study and it was significantly correlated with phosphorus availability. This study concludes that increases of eutrophication has been changing not only the structure but also the seasonality of zooplankton in Pampulha Reservoir.