JWARP> Vol.4 No.8, August 2012

OPEN ACCESS

Study about Top-Down and Bottom-Up Controls in Regulating the Phytoplankton Biomass in a Eutrophic Reservoir in Northeastern Brazil

PDF (Size:1279KB) PP. 616-621 DOI: 10.4236/jwarp.2012.48071

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ABSTRACT

This study aims to analyze the effects of nutrients and predation by zooplankton on phytoplankton biomass (chlorophyll *a*) in a eutrophic reservoir in Brazil (Apipucos Reservoir, State of Pernambuco), through experiments in microcosms. For this, samples of water were placed in 1 L Erlenmeyer flasks and kept for seven days. Treatments included the addition of nutrients (nitrogen combined with phosphorus and isolated additions of nitrogen and phosphorus), with presence and absence of zooplankton and a control which contained the reservoir water without any manipulation. The addition of nutrients did not stimulate phytoplankton growth. However, zooplankton significantly decreased phytoplankton biomass in the treatments it was added to ($p < 0.05$). The results of this study showed that for the reservoir studied, predation by zooplankton is the most significant factor in the regulation of phytoplankton, contradicting several studies which show that phytoplankton biomass is more strongly controlled by nutrients (bottom-up control) than by predation (top-down control).

KEYWORDS

Chlorophyll *a*; Nutrients; Zooplankton; Tropical Regions

Cite this paper

J. Severiano, A. Moura, E. Magalhães and V. Almeida, "Study about Top-Down and Bottom-Up Controls in Regulating the Phytoplankton Biomass in a Eutrophic Reservoir in Northeastern Brazil," *Journal of Water Resource and Protection*, Vol. 4 No. 8, 2012, pp. 616-621. doi: 10.4236/jwarp.2012.48071.

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