



## MICROPLASTICS AND PLANKTONIC COMMUNITIES IN A SUBTROPICAL FRESHWATER RIVER

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Microplastics (< 5 mm) are persistent environmental pollutants capable of interacting with organisms at different trophic levels. Previous studies indicate negative effects of this interaction on planktonic organisms, including changes in growth, reproduction, birth rate and mortality of zooplankton, as well as a reduction in photosynthetic rate and increased oxidative stress in phytoplankton. This study aimed to survey microplastic concentrations in the water and assess possible associations with phytoplankton and zooplankton communities in the Ocoí river, a tributary of the Itaipu Reservoir (Paraná, Brazil). Microplastic samples were collected in September and November 2025, while planktonic communities were sampled in August and November of the same year, at two sites along the main river channel. The mean microplastic density found was  $2.44 \times 10^{-5}$  particles/mL in September and  $2.08 \times 10^{-5}$  particles/mL in November. Phytoplankton abundance was 35,635 cells/mL in August and 16,136 cells/mL in November, with a predominance of Cyanobacteria (72% and 98.2%, respectively). Zooplankton showed an abundance of 1,106 ind./mL in August and 1,094 ind./mL in November, with predominance of the class Crustacea (75.5% and 52.4%, respectively), especially from the order Cyclopoida (47.7% and 33.8%, respectively). The microplastic concentrations observed in the Ocoí river Branch were considered low compared to values reported in the literature for freshwater ecosystems, and we did not observe clear relationships between the presence of microplastics and changes in planktonic communities. However, our sampling was small and a continued monitoring at broader spatial and temporal scales is needed. The data presented provide an initial baseline for comparisons in future studies in the basin, contributing to the assessment of ecosystem health and supporting actions to protect aquatic environments from emergent contaminants.

**Keywords:** Emerging pollutants, phytoplankton, zooplankton, plastic pollution, freshwater.

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