

Plankton, Bioindicator of Water Quality in the Underground River System of Bribin-Baron as the main water supplier in the Gunung Sewu Karst Area

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ABSTRACT

The presence of plankton in the waters as bioindicator provide information about the condition of the waters. Plankton is a biological parameter that is used as an indicator to evaluate the quality and the level of pollution in water. Plankton is an important element in aquatic ecosystems as primary producers and consumers. Moreover, phytoplankton are directly involved in the food chain which provides the main source of nutrition for higher trophic organisms that act as consumers, one of which is zooplankton. The aims of the study are: 1) identifying the diversity of plankton species as a bioindicator of water quality; 2) evaluate the physical and chemical quality of water; and 3) recording a New Record (new note) of plankton species in the underground river system - BribinBaron in the Gunung Sewu Karst Area. Plankton diversity in cave life is expressed by the Shannon-Wiener index (Krebs 1989), Species richness with Margalef (Krebs 1989). The level of community stability is calculated using the Shannon evenness index (Ludwig & Reynolds 1988). Habitat grouping using cluster analysis uses the unweighted pair-group method using arithmetic averages (UPGMA) (Sneath & Sokal 1973) based on the Jaccard similarity index (Green et al. 1997). Data analysis was performed using PAST version 3.1 software. We observed that there were 19 species, 10 genera, and 3 classes of zooplankton. The species with the highest diversity is Cyclops strenum which is indicated by the Shannon Wiener index value of 1.003. The value of 1.003 is classified as a moderate diversity value. The species with the highest species richness (Richnnes) was Notholca sp.1 which had the same Margalef index value of 1,443. Meanwhile, the species with the highest evenness was Cyclops sp. Which has an evenness index value of 0.9981. From all indicators, SBT Bribin-Baron has good water quality and can be utilized by the community.

Kata Kunci: *plankton, bioindicator, bribin, baron, biospeleology*