

ANALISIS HUBUNGAN TEKSTUR SEDIMEN DAN *TOTAL ORGANIC CARBON* (TOC) TERHADAP STRUKTUR KOMUNITAS MAKROZOOBENTHOS PADA SUNGAI KRASAK DI AREA GUNUNG MERAPI

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ABSTRAK

Sungai Krasak yang berlokasi di D.I Yogyakarta mengalami perubahan morfologi dan pemasukkan bahan organik akibat erupsi Gunung Merapi pada tahun 2010. Kandungan bahan organik pada sedimen akan memengaruhi struktur komunitas makrozoobenthos. Tujuan penelitian ini adalah untuk mengetahui hubungan antara tekstur sedimen dan *Total Organic Carbon* (TOC) terhadap struktur komunitas makrozoobenthos. Pengambilan data di lapangan melalui metode survei yang bersifat eksploratif dengan penentuan titik sampling secara *purposive sampling*. Data yang diperoleh diidentifikasi dan dianalisis di laboratorium PULIK, Bandung. Hubungan antara kandungan *Total Organic Carbon* (TOC) dan tekstur sedimen di perairan Sungai Krasak dan pengaruhnya terhadap struktur komunitas makrozoobenthos dianalisis dengan analisis jalur (*path analysis*). Tekstur sedimen pada Sungai Krasak didominasi dengan fraksi pasir. Hasil uji *path analysis* menunjukkan bahwa *Total Organic Carbon* (TOC) dan tekstur sedimen memiliki koefisien determinasi R^2 masing-masing sebesar 0,141, 0,1661, dan 0,098 terhadap indeks kelimpahan, keanekaragaman, dan dominansi yang berarti parameter tersebut memiliki korelasi yang sangat rendah terhadap indeks ekologi makrozoobenthos. Nilai signifikansi yang didapat dari analisis menunjukkan bahwa parameter TOC dan tekstur sedimen tidak berpengaruh signifikan ($p = >0,05$) terhadap seluruh indeks ekologi makrozoobenthos baik kelimpahan, keanekaragaman, dan dominansi.

Kata kunci : Makrozoobenthos, Sedimen, Sungai Krasak, TOC.

ANALYSIS OF THE CORRELATION BETWEEN SEDIMENT TEXTURE AND TOTAL ORGANIC CARBON (TOC) TO THE MACROZOOBENTHOS COMMUNITY STRUCTURE IN KRASAK RIVER IN THE MOUNT MERAPI AREA

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The Krasak River, located in D.I Yogyakarta, has undergone morphological changes and the influx of organic materials due to the eruption of Mount Merapi in 2010. The content of organic materials in sediment will affect the structure of macrozoobenthos communities. Sediment texture consisting of sand, mud, and clay fractions will determine the ability to absorb organic materials such as Total Organic Carbon (TOC) in a water body. The research was conducted from March to June 2023 and involved exploratory field survey data collection, purposive sampling for determining sampling points, and data processing, identification, and analysis carried out at the PULIK laboratory in Bandung. The relationship between Total Organic Carbon (TOC) content and sediment texture in the waters of the Krasak River and its influence on the macrozoobenthos community structure were analyzed using path analysis. The sediment texture in the Krasak River is predominantly composed of sand fraction. The results of the path analysis test show that Total Organic Carbon (TOC) and sediment texture have determination coefficients (R^2) of 0.141, 0.1661, and 0.098, respectively, concerning the abundance, diversity, and dominance indices, indicating that these parameters have very low correlations with the macrozoobenthos ecological indices. The significance values obtained from the analysis indicate that both TOC and sediment texture do not have a significant effect ($p > 0.05$) on all macrozoobenthos ecological indices, including abundance, diversity, and dominance.

Keywords : *Krasak River, Makrozoobenthos, Sediment, TOC.*