

## **STRUKTUR KOMUNITAS FITOPLANKTON DI ESTUARI SUNGAI TUNAN, WARU, PENAJAM PASER UTARA, KALIMANTAN TIMUR**

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### **INTISARI**

Estuari Sungai Tunan telah menerima limbah dari kegiatan industri dan domestik, sehingga diduga kualitas air di estuari Sungai Tunan menurun. Fitoplankton merupakan produsen utama di ekosistem perairan yang dapat merespon perubahan lingkungan dengan cepat, sehingga dapat dijadikan bioindikator. Pasang surut berpengaruh terhadap variasi karakteristik abiotik dan biotik di estuari jangka menengah (*spring-neap tide*) dan jangka pendek (*high-low water cycle*). Penelitian ini bertujuan untuk mempelajari struktur komunitas fitoplankton di estuari Sungai Tunan berdasarkan waktu pasang surut dan kaitannya dengan parameter fisikokimiawi. Sampel fitoplankton diambil di dua titik stasiun pada permukaan (0 cm) dan jeluk (42-77,5 cm). Pengukuran parameter lingkungan meliputi salinitas, suhu, alkalinitas, DO, kecerahan, kecepatan arus, pH, dan fosfat. Pengamatan, identifikasi, dan penghitungan fitoplankton dilakukan menggunakan mikroskop dan *Sedgwick-Rafter Counting Cell*. Analisis data meliputi indeks keanekaragaman, keseragaman, kesamaan Bray-Curtis, dan dominansi. Pengaruh parameter fisikokimiawi terhadap keanekaragaman dan kelimpahan fitoplankton dianalisis menggunakan PCA. Pengaruh pasang surut terhadap fitoplankton dianalisis menggunakan ANOVA. Berdasarkan hasil penelitian, ditemukan sebanyak 96 spesies dari enam kelas fitoplankton yaitu Bacillariophyceae (69 spesies), Dinophyceae (14 spesies), Chlorophyceae (2 spesies), Euglenophyceae (2 spesies), Zygnematomphyceae (5 spesies), dan Cyanophyceae (4 spesies). Pasang surut berpengaruh signifikan terhadap struktur komunitas fitoplankton. Salinitas, pH, kecepatan arus, kecerahan, dan DO yang berkorelasi positif, sedangkan alkalinitas dan fosfat berkorelasi negatif terhadap struktur komunitas fitoplankton.

Kata kunci : Fitoplankton, struktur komunitas, Estuari Sungai Tunan, pasang surut

## ***PHYTOPLANKTON COMMUNITY STRUCTURE IN TUNAN RIVER ESTUARY, WARU, PENAJAM PASER UTARA, EAST KALIMANTAN***

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### ***ABSTRACT***

*The Tunan River Estuary has received waste from industrial and domestic Tunan River estuary is being subjected to pollution by influx of various wastes from industrial and domestic activities, increasing water quality problems. Phytoplankton, microscopic primary producer and base of aquatic food webs, can respond fluctuation of physicochemical properties of habitats generated by environmental changes. Tides are also one of the factors that affect variations in the abiotic and biotic characteristics of estuaries. This research aims to study the phytoplankton community structure in the Tunan River estuary and its relationship to tides and physicochemical parameters. Sample of phytoplankton were taken on the surface (0 cm) and depth of 42-77.5 cm at two stations. Measurement of environmental parameters included salinity, temperature, alkalinity, DO, transparency, current velocity, pH, and phosphate. Data analysis included indices of diversity, evenness, Bray-Curtis similarity, and dominance. The influence of physicochemical parameters on phytoplankton was analyzed using principal component analysis. The effect of tides on the diversity and abundance of phytoplankton was analyzed using analysis of variance. The results showed that 96 species were found from six classes of phytoplankton, namely Bacillariophyceae (69 species), Dinophyceae (14 species), Chlorophyceae (2 species), Euglenophyceae (2 species), Zygnematophyceae (5 species), and Cyanophyceae (4 species). Tides have significant effect on the phytoplankton community structure. Salinity, pH, current velocity, transparency, and DO are positively correlated, while alkalinity and phosphate are negatively correlated to the phytoplankton community structure.*

Keywords : *Phytoplankton, community structure, Tunan River Estuary, tidal cycle*