

## **ABSTRAK**

### **TINGKAT PENCEMARAN PERAIRAN PANTAI GUNUNG KUNYIT KECAMATAN BUMI WARAS, KOTA BANDAR LAMPUNG BERDASARKAN KOMUNITAS FITOPLANKTON**

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Fitoplankton merupakan organisme autotrofik yang sensitif terhadap perubahan lingkungan dan sering digunakan sebagai bioindikator kualitas perairan. Aktivitas antropogenik di Pantai Gunung Kunyit menghasilkan limbah domestik yang berpotensi menurunkan kualitas perairan serta memengaruhi struktur komunitas fitoplankton. Penelitian ini bertujuan menganalisis struktur komunitas fitoplankton serta menilai tingkat pencemaran di perairan Pantai Gunung Kunyit Kecamatan Bumi Waras, Kota Bandar Lampung. Pengukuran parameter fisika dan kimia dan pengambilan sampel fitoplankton dilakukan dua kali pada tiga stasiun pengamatan. Tingkat pencemaran organik ditentukan menggunakan indeks saprobik (SI). Hasil penelitian menunjukkan bahwa terdapat 32 jenis fitoplankton yang teridentifikasi dari enam kelas, yaitu Bacillariophyceae, Chlorophyceae, Cyanophyceae, Dinophyceae, Euglenophyceae, dan Trebouxiophyceae. Kelimpahan fitoplankton berkisar antara 8.589–16.938 ind/L, yang tergolong perairan eutrofik atau memiliki tingkat kesuburan tinggi. Nilai indeks keanekaragaman sedang ( $H' = 1,28-1,37$ ), keseragaman tinggi ( $E = 0,93-0,99$ ), dan dominansi rendah ( $C = 0,26-0,30$ ). Tingkat pencemaran organik berdasarkan indeks saprobik (SI) termasuk dalam kategori  $\alpha$ -mesosaprobik hingga  $\beta$ -mesosaprobik, yang menunjukkan kondisi tercemar ringan hingga sedang. Analisis komponen utama (PCA) menunjukkan bahwa suhu, salinitas, oksigen terlarut, nitrat, dan fosfat sebagai parameter lingkungan yang paling berpengaruh terhadap kelimpahan fitoplankton di perairan Pantai Gunung Kunyit. Upaya pengelolaan lingkungan pesisir dan peningkatan partisipasi masyarakat dalam menjaga kebersihan di Pantai Gunung Kunyit diperlukan guna menjaga kualitas perairan dan kelestarian ekosistem pesisir.

**Kata Kunci:** Eutrofikasi, Fitoplankton, Indeks Saprobik, Pencemaran

## ABSTRACT

### **POLLUTION LEVELS OF THE COASTAL WATERS OF GUNUNG KUNYIT BEACH, BUMI WARAS DISTRICT, BANDAR LAMPUNG CITY, BASED ON PHYTOPLANKTON COMMUNITY**

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Phytoplankton are autotrophic organisms that are sensitive to environmental changes and are widely used as bioindicators of water quality. Anthropogenic activities at Gunung Kunyit Beach generate domestic waste that may reduce water quality and affect phytoplankton community structure. This study aims to analyze phytoplankton community structure and assess pollution levels in the coastal waters of Gunung Kunyit Beach, Bumi Waras District, Bandar Lampung City. Measurements of physical and chemical parameters, along with phytoplankton sampling, were conducted twice at three observation stations. The level of organic pollution was determined using the saprobic index (SI). The results showed that 32 phytoplankton species were identified, belonging to six classes namely Bacillariophyceae, Chlorophyceae, Cyanophyceae, Dinophyceae, Euglenophyceae, and Trebouxiophyceae. Phytoplankton abundance ranged from 8,589 to 16,938 ind/L, indicating eutrophic waters with high productivity. The diversity index was moderate ( $H' = 1.28-1.37$ ), evenness was high ( $E = 0.93-0.99$ ), and dominance was low ( $C = 0.26-0.30$ ). Based on the saprobic index (SI), the waters were classified as  $\alpha$ -mesosaprobic to  $\beta$ -mesosaprobic, indicating lightly to moderately polluted conditions. Principal component analysis (PCA) indicated that temperature, salinity, dissolved oxygen, nitrate, and phosphate were the environmental parameters that most strongly influenced phytoplankton abundance in the coastal waters of Gunung Kunyit Beach. Efforts in coastal environmental management and increased community participation in maintaining cleanliness at Gunung Kunyit Beach are needed to preserve water quality and coastal ecosystem sustainability.

Keywords: Eutrophication, Phytoplankton, Pollution, Saprobic Index