

ABSTRAK

Perairan estuari merupakan ekosistem yang memiliki produktivitas tinggi dan berperan penting sebagai habitat berbagai organisme akuatik. Namun, aktivitas antropogenik dapat memengaruhi kualitas perairan serta struktur komunitas fitoplankton. Fitoplankton sebagai produsen primer dan bioindikator memiliki sensitivitas terhadap perubahan kondisi lingkungan, sehingga kelimpahan dan struktur komunitasnya dapat digunakan untuk menggambarkan kondisi ekologis perairan. Penelitian ini bertujuan untuk menganalisis kelimpahan, struktur komunitas, dan hubungan parameter kualitas perairan terhadap kelimpahan fitoplankton di Perairan Estuari Bancaran, Kabupaten Bangkalan. Penelitian dilaksanakan pada Januari–Februari 2026 menggunakan metode deskriptif kuantitatif dengan teknik *purposive sampling* pada empat titik pengamatan yang mewakili karakteristik lingkungan berbeda. Analisis struktur komunitas meliputi indeks keanekaragaman, keseragaman, dan dominasi, sedangkan hubungan kualitas perairan dengan kelimpahan fitoplankton dianalisis menggunakan uji korelasi. Kelimpahan fitoplankton berkisar antara 58–255,1 ind/L dan termasuk kategori oligotrofik. Nilai indeks keanekaragaman (H') diperoleh nilai 1,203–2,880 (kategori keanekaragaman sedang), Nilai Indeks Keseragaman diperoleh 0,678–0,883 (kategori Keseragaman tinggi), dan nilai indeks dominasi diperoleh 0,036–0,490 (kategori Dominasi rendah), yang menunjukkan komunitas fitoplankton relatif stabil tanpa adanya dominasi spesies tertentu. Analisis perbedaan kelimpahan fitoplankton pada antar titik pengamatan dan minggu menunjukkan tidak berbeda nyata secara signifikan.

Kata kunci: Estuari Bancaran, fitoplankton, kelimpahan, struktur komunitas, kualitas perairan.

ABSTRACT

*Estuarine waters are highly productive ecosystems that play an important role as habitats for various aquatic organisms. However, anthropogenic activities can affect water quality and alter the structure of phytoplankton communities. As primary producers and biological indicators, phytoplankton are highly sensitive to environmental changes; therefore, their abundance and community structure can be used to assess the ecological condition of aquatic ecosystems. This study aimed to analyze phytoplankton abundance, community structure, and the relationship between water quality parameters and phytoplankton abundance in the Bancaran Estuary, Bangkalan Regency. The study was conducted from January to February 2026 using a quantitative descriptive method with a purposive sampling technique at four observation stations representing different environmental characteristics. Community structure was evaluated using the Shannon–Wiener diversity index, evenness index, and Simpson dominance index, while the relationship between water quality parameters and phytoplankton abundance was analyzed using correlation analysis. Phytoplankton abundance ranged from **58-255.1** individuals L^{-1} , indicating oligotrophic conditions. The diversity index ranged from **1.938-2.656** (moderate category), the evenness index ranged from **0.727 -0.849** (high category), and the dominance index ranged from **0.064-0.199** (low category), indicating a relatively stable phytoplankton community without the dominance of a particular species. The analysis of phytoplankton abundance differences among observation stations and between observation weeks indicated no statistically significant differences.*

Keywords: Bancaran Estuary, phytoplankton, abundance, community structure, water quality.