

ABSTRAK

Muara Sungai Pemali, yang terletak di Desa Kaliwlingi Kabupaten Brebes, Provinsi Jawa Tengah, merupakan salah satu daerah yang memiliki ekosistem mangrove. Namun, ekosistem tersebut mengalami tekanan akibat alih fungsi lahan menjadi tambak bandeng dan udang. Tujuan dari penelitian ini adalah untuk mengetahui hubungan kerapatan vegetasi mangrove dengan struktur komunitas gastropoda. Pengambilan data dilakukan di musim kemarau pada bulan Agustus 2025. Metode penelitian yang digunakan pada penelitian ini adalah metode survei dengan pengamatan langsung dan metode analisis data statistik. Analisis data statistik menggunakan *Principal Component Analysis* (PCA). Berdasarkan hasil penelitian, ditemukan dua spesies mangrove, yaitu *Rhizophora mucronata* dan *Avicennia marina*, dengan kisaran kerapatan 1.522 – 1.789 ind/ha. Berdasarkan hasil pengamatan struktur komunitas gastropoda di Hutan Mangrove Muara Sungai Pemali ditemukan 10 spesies dari 5 Famili, yaitu Famili Littorinidae, Ellobiidae, Cerithium, Potamididae, dan Neritidae. Kondisi fisika dan kimia perairan pada Muara Sungai Pemali masih mendukung kelangsungan hidup gastropoda karena memiliki nilai yang sesuai dengan baku mutu kualitas air. Hubungan kerapatan mangrove dan parameter fisika kimia perairan terhadap struktur komunitas gastropoda menunjukkan bahwa variabilitas kondisi lingkungan sangat menentukan struktur dan stabilitas komunitas biota. Faktor-faktor seperti salinitas, DO, suhu, serta pH berperan sebagai pengendali utama kondisi struktur komunitas gastropoda di ekosistem mangrove.

Kata kunci: Mangrove, Struktur Komunitas Gastropoda, Parameter Perairan, PCA

ABSTRACT

Pemali River Estuary, located in Kaliwlingi Village, Brebes Regency, Central Java Province, is one of the areas with a mangrove ecosystem. However, this ecosystem is under pressure due to land conversion into milkfish and shrimp ponds. The purpose of this study was to determine the relationship between mangrove vegetation density and gastropod community structure. Data collection was carried out in the dry season in August 2025. The research method used in this study was a survey method with direct observation and statistical data analysis methods. Statistical data analysis used Principal Component Analysis (PCA). Based on the results of the study, two mangrove species were found, namely *Rhizophora mucronata* and *Avicennia marina*, with a density range of 1,522 - 1,789 ind / ha. Based on the results of observations of the gastropod community structure in the Pemali River Estuary Mangrove Forest, 10 species from 5 Families were found, namely the Littorinidae, Ellobiidae, Cerithium, Potamididae, and Neritidae Families. The physical and chemical conditions of the waters in the Pemali River Estuary still support the survival of gastropods, as they meet water quality standards. The relationship between mangrove density and water physicochemical parameters and gastropod community structure indicates that environmental variability significantly determines the structure and stability of the biota community. Factors such as salinity, dissolved oxygen (DO), temperature, and pH plays a role as the main controller of the condition of the gastropod community structure in the mangrove ecosystem.

Keywords: Mangrove, Gastropod Community Structure, Water Parameters, PCA