

ABSTRACT

This study aimed to analyze the relationship between the morphometric characteristics of fiddler crabs (*Uca* sp.) and environmental quality in the coastal area of Lhokseumawe City. The study was conducted at six sampling stations representing different habitat characteristics. Fiddler crabs were collected using the Visual Encounter Survey method, while sediment samples were collected at a depth of 0–10 cm. The observed morphometric parameters included claw length, carapace length, carapace width, and body weight, whereas the environmental parameters consisted of water temperature, sediment temperature, salinity, water pH, sediment pH, dissolved oxygen (DO), total organic matter (BOT), and sediment grain size fractions. The relationship between morphometric characteristics and environmental parameters was analyzed using Principal Component Analysis (PCA). The results showed that the morphometric characteristics of fiddler crabs varied among sampling stations, while environmental conditions ranged from 25–31‰ for salinity, 2.0–5.7 mg L⁻¹ for dissolved oxygen, 6.2–7.6 for water pH, and 12.00–35.09% for total organic matter. Sediment was generally dominated by muddy and sandy mud substrates. PCA indicated that several morphometric variables were associated with environmental parameters, particularly dissolved oxygen and sediment characteristics. These findings suggest that environmental quality influences the morphometric characteristics of fiddler crabs, indicating that *Uca* sp. has the potential to serve as a bioindicator of coastal ecosystem conditions.

Keywords: Environmental quality, Lhokseumawe Coast, Morphometrics, Principal Component Analysis (PCA), *Uca* sp.

RINGKASAN

NURFADILAH . Hubungan Morfometrik Kepiting Biola (*Uca sp*) Dengan Kualitas Lingkungan Perairan Di Pesisir Kota Lhokseumawe. Dibimbing oleh MUNAWAR KHALIL Dan ARINA RUZANNA.

Penelitian ini bertujuan untuk menganalisis hubungan antara karakteristik morfometrik kepiting biola (*Uca sp.*) dan kualitas lingkungan di pesisir Kota Lhokseumawe. Penelitian dilakukan pada enam stasiun pengamatan menggunakan metode Visual Encounter Survey untuk pengambilan sampel kepiting. sedangkan sampel sedimen diambil pada kedalaman 0–10 cm. Parameter morfometrik yang diamati meliputi panjang capit, panjang karapas, lebar karapas, dan berat tubuh. sedangkan parameter lingkungan meliputi suhu perairan, suhu sedimen, salinitas, pH perairan, pH sedimen, oksigen terlarut (DO), bahan organik total (BOT), dan fraksi sedimen. Hubungan antara morfometrik dan kualitas lingkungan dianalisis menggunakan Principal Component Analysis (PCA). Hasil penelitian menunjukkan bahwa karakteristik morfometrik kepiting biola dan kondisi lingkungan bervariasi pada setiap stasiun pengamatan. Komposisi sedimen didominasi oleh lumpur dan lumpur berpasir. Hasil analisis PCA menunjukkan bahwa beberapa parameter morfometrik berhubungan dengan parameter lingkungan. terutama oksigen terlarut dan karakteristik sedimen. Penelitian ini menunjukkan bahwa kualitas lingkungan memengaruhi karakteristik morfometrik kepiting biola sehingga *Uca sp.* berpotensi dimanfaatkan sebagai bioindikator kondisi ekosistem pesisir di Kota Lhokseumawe.

Kata kunci: Analisis Komponen Utama (PCA), kualitas lingkungan, morfometrik, pesisir Lhokseumawe, *Uca sp.*