

ABSTRAK

This study analyzed the spatial distribution of fiddler crabs (*Uca* sp.) and their environmental characteristics in the waters of Lhokseumawe City, Aceh. A purposive sampling method was used to determine six observation stations in three zones (west, central, and east). Crab data collection was carried out using the visual encounter method, and environmental parameters (temperature, salinity, pH, and BOT) were measured in situ. The results showed 13 species of *Uca* sp., with *U. annulipes* dominating in the western and eastern zones, and *U. benggali* in the central zone. Diversity and dominance indices were low, while the evenness index was moderate. PCA analysis showed a relationship between species distribution and environmental characteristics of each zone. The western zone was characterized by high pH, the central zone by high temperature, and the eastern zone by high salinity and BOT. The study suggests further studies to evaluate *Uca* sp. as a bioindicator and the factors influencing its distribution for sustainable mangrove ecosystem management.

Keywords: *Bioindicator*, Mangrove, PCA Analysis, Spatial Distribution, *Uca* crab