RINGKASAN

ABDULLAH ZIYAD SULTHANY. Struktur Komunitas Ikan Karang di Ekosistem Terumbu Karang Pulau Beralas Pasir, Bintan. Dibimbing oleh AHMAD ZAHID dan JUMSURIZAL.

Ekosistem terumbu karang memiliki keanekaragaman hayati tinggi serta menjadi habitat penting bagi ikan karang untuk mencari makan, berlindung, dan berkembang biak. Penelitian ini bertujuan untuk menganalisis kepadatan, biomassa, dan struktur komunitas ikan karang serta korelasinya dengan parameter kualitas air. Penelitian dilaksanakan pada April 2026 di perairan Pulau Beralas Pasir, Kabupaten Bintan. Penentuan lokasi sampling dilakukan secara *purposive* sampling pada tiga stasiun. Data ikan karang diambil menggunakan metode *Baited Remote Underwater Video Systems* (BRUVS) dengan dua kali pengulangan (pagi dan sore). Parameter lingkungan yang diukur meliputi kecerahan, suhu, salinitas, DO, dan pH. Analisis data meliputi indeks keanekaragaman Shannon-Wiener (H'), indeks keseragaman Pielou's (E), dominansi Simpson (D), *One Way* ANOVA, dan *Principal Component Analysis* (PCA) menggunakan perangkat lunak JAMOVI. Hasil penelitian menemukan 22 jenis ikan karang dengan total 324 individu. Kepadatan tertinggi ditemukan pada Lokasi 3 dan terendah pada Lokasi 1. Nilai H' berkisar 0,24–1,16 (pagi) dan 0,98–1,46 (sore); nilai E berkisar 0,22–0,80 (pagi) dan 0,71–0,90 (sore); serta nilai D berkisar 0,38–0,89 (pagi) dan 0,36–0,40 (sore). Kondisi ini menunjukkan adanya variasi struktur komunitas antar lokasi dan waktu. Hasil uji *One-Way* ANOVA dan *Tukey Post-Hoc* mengindikasikan hanya kepadatan *Pomacentrus cuneatus* yang berbeda nyata antar waktu ($p<0,05$). Sebaliknya, kepadatan *S. leptolepis*, *U. tragula*, serta struktur komunitas secara umum tidak berbeda nyata baik antar waktu maupun lokasi. Analisis PCA menyimpulkan bahwa oksigen terlarut dan pH merupakan faktor lingkungan utama yang paling berpengaruh terhadap kepadatan *P. cuneatus*, *S. leptolepis*, *U. tragula*, dan struktur komunitas ikan karang secara keseluruhan.

Kata kunci: BRUVS, Ikan Karang, Kedalaman, Pulau Beralas Pasir, Struktur Komunitas.

SUMMARY

ABDULLAH ZIYAD SULTHANY. Community Structure of Reef Fishes in Coral Reef Ecosystem of Beralas Pasir Island, Bintan. Supervised by AHMAD ZAHID and JUMSURIZAL.

Coral reef ecosystems have high biodiversity and are important habitats for reef fish to feeding and breeding. This study aims to analyze the density, biomass, and community structure of reef fish and their correlation with water quality parameters. The research will be carried out in April 2026 in the waters of Beralas Pasir Island, Bintan Regency. The location of sampling was determined by purposive sampling at three stations. Reef data was taken using the Baited Remote Underwater Video Systems (BRUVS) method with two repetitions (morning and evening). The environmental parameters measured include brightness, temperature, salinity, DO, and pH. Data analysis included the Shannon-Wiener diversity index (H'), Pielou's uniformity index (E), Simpson's dominance (D), One Way ANOVA, and Principal Component Analysis (PCA) using JAMOVI software. The results of the study found 22 types of reef fish with a total of 324 individuals. The highest density was found at Site 3 and lowest at Site 1. H' values ranged from 0.24–1.16 (morning) and 0.98–1.46 (afternoon); E values range from 0.22–0.80 (morning) and 0.71–0.90 (afternoon); and D values ranged from 0.38–0.89 (morning) and 0.36–0.40 (afternoon). This condition shows that there is a variation in the structure of the community between locations and times. The results of One-way ANOVA and Tukey Post-Hoc tests indicated that only the density of *Pomacentrus cuneatus* differed markedly between time periods ($p<0.05$). On the other hand, the density of *S. leptolepis, U. tragula,* and community structure in general did not differ significantly between time and location. PCA analysis concluded that dissolved oxygen and pH were the main environmental factors that most affected the density of *P. cuneatus, S. leptolepis, U. tragula*, and the overall structure of reeffish communities.

Keywords: Beralas Pasir Island , BRUVS, , Community Structure, Depth, Reef Fish.