

RINGKASAN

GREVANDHY RUDOLF KADJA (18380059). Struktur Komunitas Echinodermata di Ekosistem Lamun Pantai Baliana Desa Kuanheum Kecamatan Kupang Barat Kabupaten Kupang” Dibawah Bimbingan Wilson L.Tisera. S. Pi., M. Si., Ph,D dan Rockie R.L. Supit, S. Pi., M.Si Sebagai Pembimbing I dan Pembimbing II. Program Studi Manajemen Sumber Daya Perairan, Fakultas Perikanan dan Ilmu Kelautan, Universitas Kristen Artha Wacana Kupang.

Penelitian ini dilatarbelakangi oleh pentingnya ekosistem lamun sebagai habitat sebagai organisme laut, termasuk Echinodermata, yang berperan penting secara ekologis dan ekonomis. Pantai Baliana merupakan salah satu lokasi pesisir yang memiliki potensi ekosistem lamun yang tinggi, namun mulai terpengaruh oleh aktivitas manusia seperti pemanfaatan berlebihan dan pencemaran. Penelitian ini bertujuan untuk menganalisis status ekologi Echinodermata dengan mengamati kelimpahan jenis dan relatif, indeks keanekaragaman, dan indeks dominansi pada ekosistem lamun di Pantai Baliana. Penelitian ini dilakukan pada bulan juni 2025 dengan menggunakan metode survei dan observasi langsung. Empat garis transek sepanjang 25 meter dengan interval 100 meter ditempatkan di lokasi penelitian, dengan pengamatan dilakukan menggunakan kuadran 5×5 meter. Parameter kualitas air seperti suhu, pH dan salinitas juga diukur sebagai interpretasi ekologi.

Hasil penelitian ini menunjukkan bahwa ditemukan 14 jenis Echinodermata dari 4 kelas, yaitu, Echinodea, Asteroidea, Crinoidea dan Holothuroidea. Jenis yang paling dominan secara jumlah adalah *Tripneustes gratilla* (Echinodea), dengan kelimpahan sebesar 0,068 individu/m² dan kelimpahan relatif 29,57%. Sementara itu, beberapa jenis lainnya seperti *Capilaster* sp., *Holothuria scabra*, dan *Archaster typicus* hanya ditemukan dengan kelimpahan sangat rendah (0,002 individu/m²). Indeks keanekaragaman (H') bernilai 0,05 yang menunjukkan tingkat keanekaragaman rendah, sedangkan indeks dominansi (C) sebesar 0,18, menandakan bahwa tidak ada spesies yang secara mutlak mendominasi komunitas. Kondisi kualitas perairan Pantai Baliana masih tergolong baik dengan suhu sebesar 28°C, pH yang berkisar antara 7,0 hingga 7,5, serta salinitas 28‰. Substrat dasar berupa pasir halus sedikit berlumpur serta patahan karang dan padang lamun sangat mendukung keberadaan Echinodermata. Namun, keanekaragaman yang rendah menunjukkan adanya tekanan ekologis, kemungkinan besar berasal dari manusia seperti pengambilan langsung oleh masyarakat untuk di konsumsi dan kurangnya pengelolaan sampah yang dibawa ke perairan. Beberapa spesies yang sensitif seperti *Crinoidea* hanya ditemukan pada vegetasi lamun yang cukup lebat.

Kata kunci : Struktur Komunitas, Ekosistem Lamun, Echinodermata, Keanekaragaman, Pantai Baliana.

SUMMARY

GREVANDHY RUDOLF KADJA (18380059). Structure of the Echinodermata Community in the Seagrass Ecosystem of Baliana Beach, Kuanheum Village, West Kupang District, Kupang Regency” Under the supervision of Wilson L. Tisera, S.Pi., M.Si., Ph.D., and Rockie R. L. Supit, S.Pi., M.Si., as First Supervisor and Second Supervisor. Department of Aquatic Resource Management, Faculty of Fisheries and Marine Sciences, Artha Wacana Christian University, Kupang.

This study is motivated by the importance of seagrass ecosystems as habitats for marine organisms, including Echinodermata, which play a significant ecological and economic role. Baliana Beach is one of the coastal areas with high seagrass ecosystem potential, but it is beginning to be affected by human activities such as over-exploitation and pollution. This study aims to analyze the ecological status of Echinodermata by observing species abundance and relative abundance, diversity indices, and dominance indices in the seagrass ecosystem at Baliana Beach. The study was conducted in June 2025 using survey and direct observation methods. Four transect lines, each 25 meters long with 100-meter intervals, were placed at the study site, with observations conducted using 5×5-meter quadrants. Water quality parameters such as temperature, pH, and salinity were also measured for ecological interpretation. The results of this study show that 14 species of Echinodermata from 4 classes were found, namely Echinodea, Asteroidea, Crinoidea, and Holothuroidea. The most dominant species in terms of number was *Tripneustes gratilla* (Echinodea), with an abundance of 0.068 individuals/m² and a relative abundance of 29.57%. Meanwhile, other species such as *Capillaster* sp., *Holothuria scabra*, and *Archaster typicus* were only found in very low abundance (0.002 individuals/m²). The diversity index (H') was 0.05, indicating a low level of diversity, while the dominance index (C) was 0.18, indicating that no species absolutely dominated the community. The results of this study show that 14 species of Echinodermata from 4 classes were found, namely Echinodea, Asteroidea, Crinoidea, and Holothuroidea. The most dominant species in terms of number was *Tripneustes gratilla* (Echinodea), with an abundance of 0.068 individuals/m² and a relative abundance of 29.57%. Meanwhile, other species such as *Capillaster* sp., *Holothuria scabra*, and *Archaster typicus* were only found in very low abundance (0.002 individuals/m²). The diversity index (H') was 0.05, indicating a low level of diversity, while the dominance index (C) was 0.18, indicating that no species absolutely dominated the community. The water quality conditions at Baliana Beach are still considered good, with a temperature of 28°C, a pH ranging from 7.0 to 7.5, and a salinity of 28‰. The substrate consists of fine sand with some mud, coral fragments, and seagrass beds, which are highly conducive to the presence of Echinodermata. However, the low diversity indicates ecological pressure, likely originating from human activities such as direct harvesting by the community for consumption and inadequate waste management leading to pollutants entering the water. Some sensitive species like Crinoidea are only found in areas with dense seagrass vegetation.

Keywords: *Community Structure, Seagrass Ecosystem, Echinodermata, Biodiversity, Baliana Beach.*