

RINGKASAN

MOHD. DAINEL HIZAD. Dinamika komunitas lamun di Perairan Pulau Mapur tahun 2015-2025 dan hubungannya dengan parameter oseanografi. Dibimbing oleh ADITYA HIKMAT NUGRAHA dan INDAH KARTIKA.

Padang lamun merupakan ekosistem pesisir penting yang berfungsi sebagai habitat, tempat pemijahan, pengasuhan, dan pembesaran berbagai biota laut, sekaligus mendukung aktivitas penangkapan ikan tradisional dan mata pencaharian nelayan di kawasan pesisir. Namun, ekosistem lamun saat ini mengalami degradasi berkelanjutan dengan laju penurunan tutupan sekitar 7% per tahun secara global. Penelitian ini bertujuan menggambarkan dinamika komunitas lamun di Perairan Pulau Mapur tahun 2015–2025 serta menjelaskan keterkaitan penurunan tutupan lamun dengan parameter oseanografi suhu, salinitas, pH, nitrat, kecepatan dan arah angin. Penelitian dilaksanakan di tiga stasiun pengamatan di Pulau Mapur. Data tahun 2015–2019 dan 2024 diperoleh dari kegiatan monitoring sebelumnya (COREMAP-CTI dan USAID Kolektif), sedangkan data tahun 2025 dikumpulkan melalui survei lapangan pada Juli 2025. Data parameter lingkungan diperoleh dari berbagai sumber satelit seperti suhu permukaan laut diunduh melalui Ocean Color dan diekstrak menggunakan SeaDAS, salinitas, nitrat, dan pH diperoleh dari Marine Copernicus yang diekstrak melalui Ocean Data View (ODV), lalu visualisasi data menggunakan ArcGIS 10.8. Kemudian data angin dari ECMWF yang diolah menggunakan WRPlot untuk mendapatkan kecepatan dan arah angin. Pengambilan data tutupan lamun menggunakan metode line transek 100 m dengan kuadran 50 × 50 cm yang diletakkan setiap 10 m pada tiga ulangan transek di setiap stasiun. Analisis data dengan menghitung tutupan lamun, kecepatan angin, regresi linear sederhana, serta korelasi Pearson. Hasil penelitian menunjukkan bahwa sebaran jenis lamun di Perairan Pulau Mapur selama 2015–2025 terdiri atas sembilan spesies yaitu *Enhalus acoroides*, *Thalassia hemprichii*, *Cymodocea rotundata*, *Oceana serrulata*, *Halophila ovalis*, *Halodule uninervis*, *Halodule pinifolia*, *Syringodium isoetifolium*, dan *Thalassodendron ciliatum*. *E. acoroides* dan *T. hemprichii* menjadi penyusun utama di seluruh lokasi. Keanekaragaman jenis tertinggi tercatat di bagian Selatan pada tahun 2015, sedangkan pada 2024–2025 disebelah Barat berubah menjadi padang lamun monospesies yang hanya didominasi *Enhalus acoroides*. Tutupan lamun di Perairan Pulau Mapur cenderung menurun selama periode 2015–2025 dengan regresi linier mengindikasikan penurunan signifikan di bagian Barat dan Timur, sedangkan bagian Selatan Pulau Mapur relatif stabil dengan tutupan tinggi. Korelasi Pearson menunjukkan bahwa pH memiliki hubungan kuat dan positif terhadap tutupan lamun (0,57) dalam kisaran pH relatif basa ($\pm 8,0$ – $8,1$), sedangkan parameter lainnya memperlihatkan hubungan yang lemah.

Kata kunci: Dinamika, Kualitas Perairan, Pulau Mapur, Tutupan Lamun

SUMMARY

MOHD. DAINEL HIZAD. Dynamics of Seagrass Communities in the Waters of Mapur Island from 2015–2025 and Their Relationship with Oceanographic Parameters. Supervised by ADITYA HIKMAT NUGRAHA and INDAH KARTIKA.

Seagrass beds are important coastal ecosystems that function as habitats, spawning grounds, nursery areas, and feeding grounds for various marine organisms, while also supporting traditional fishing activities and the livelihoods of coastal communities. However, seagrass ecosystems are currently experiencing continuous degradation, with a global decline in seagrass cover estimated at approximately 7% per year. This study aimed to describe the dynamics of seagrass communities in the waters of Mapur Island during 2015–2025 and to explain the relationship between the decline in seagrass cover and oceanographic parameters, including temperature, salinity, pH, nitrate, as well as wind speed and direction. The study was conducted at three observation stations around Mapur Island. Data from 2015–2019 and 2024 were obtained from previous monitoring programs (COREMAP-CTI and USAID Kolektif), while data for 2025 were collected through field surveys conducted in July 2025. Environmental parameter data were obtained from several satellite-based sources. Sea surface temperature data were downloaded from Ocean Color and extracted using SeaDAS. Salinity, nitrate, and pH data were obtained from Marine Copernicus and extracted using Ocean Data View (ODV), followed by data visualization using ArcGIS 10.8. Wind data were obtained from ECMWF and processed using WRPlot to determine wind speed and direction. Seagrass cover data were collected using the 100 m line transect method with 50 × 50 cm quadrats placed at 10 m intervals along three replicate transects at each station. Data analysis included calculations of seagrass cover, wind speed, simple linear regression, and Pearson correlation analysis. The results showed that the seagrass community in the waters of Mapur Island during 2015–2025 consisted of nine species, namely *Enhalus acoroides*, *Thalassia hemprichii*, *Cymodocea rotundata*, *Cymodocea serrulata*, *Halophila ovalis*, *Halodule uninervis*, *Halodule pinifolia*, *Syringodium isoetifolium*, and *Thalassodendron ciliatum*. *E. acoroides* and *T. hemprichii* were the dominant species across all locations. The highest species diversity was recorded in the southern area in 2015, whereas during 2024–2025 the western area shifted into a monospecific seagrass bed dominated solely by *Enhalus acoroides*. Seagrass cover in the waters of Mapur Island generally showed a declining trend during the 2015–2025 period, with linear regression indicating significant declines in the western and eastern areas, while the southern area remained relatively stable with high seagrass cover. Pearson correlation analysis showed that pH had a strong positive relationship with seagrass cover (0.57) within a relatively alkaline pH range (approximately 8.0–8.1), whereas the other parameters exhibited weak correlations.

Keywords: Dynamics, Mapur Island, Seagrass Cover, Water Quality