ABSTRACT

Seagrass ecosystems play a vital role in coastal waters, serving as a primary producer, sedimen stabilizer, and habitat for various marine organisms. This study was conducted to invebtory the condition of seagrass ecosystems in the PISISI Conservation Area, Simueulue regency, covering species composition, morphological characteristics, coverage percentage, density, ecological indices, water quality parameters, and sediment characteristics. Data collection used the line transect method with 50x50 cm quadrats, with observations carried out at three stations. The results showed the three seagrass species were found, namely *Halophila ovalis, Halodule pinifolia,* and *Cymodocea rotundata*. The average seagrass coverage was 47.85%, categorized as fairly dense, while coverage at inds stations ranged from 25.21% to 60.83%. Total seagrass density ranged from 199.20 to 340.93 inds/m², classified as very dense. The Shannon-Wiener diversity index was in the low to moderate category, the evenness index was high, and the dominance index was low to moderate. Water quality parameters including temperature, salinity, pH, and dissolved oxygen were generally within the suitable range for seagrass growth. Sediment at the study site was dominated by sand fractions, with variations in particle size distribution across stations. Differences in seagrass conditions among stations were closely related to variations in water characteristics, sediment type, and anthropogenic pressures. The findings provide baseline information to support the conservation and sustainable management of seagrass ecosystems in the PISISI Conservation Area.

Keywords: Coverage, Density, Ecological Index, PISISI Conservation Area, Seagrass.

RINGKASAN

DICKY ANANDA SYAHPUTRA. Inventarisasi Kondisi Ekosistem Lamun di Kawasan Konservasi PISISI Kabupaten Simeulue. Dibimbing oleh ERNIATI dan YUDHO ANDIKA.

Kawasan pesisir memiliki peran strategis melalui ekosistem padang lamun yang berfungsi sebagai produsen primer, penstabil sedimen, serta habitat biota laut. Di Kawasan Konservasi PISISI, data ilmiah mengenai kondisi lamun masih terbatas, padahal aktivitas masyarakat dan perubahan lingkungan diduga memberi tekanan terhadap kelestariannya. Penelitian ini dilaksanakan Juni 2026 di tiga stasiun menggunakan metode transek garis dan kuadrat 50x50 cm dengan 30 ulangan per stasiun, untuk menginventarisasi komposisi jenis, tutupan, kerapatan, indeks ekologi, kualitas air, dan karakteristik sedimen. Ditemukan tiga jenis lamun: *Halophila ovalis* dan *Halodule pinifolia* di seluruh stasiun, serta *Cymodocea rotundata* hanya di Stasiun 1. Rata-rata tutupan mencapai 47,85% (kategori cukup padat/kurang sehat), sedangkan kerapatan berkisar 199,20-340,93 ind/m² (sangat rapat). Indeks keanekaragaman tergolong rendah-sedang, keseragaman tinggi, dan dominansi rendah-sedang. Parameter kualitas air umumnya mendukung pertumbuhan, meskipun ada sedikit penyimpanan suhu dan salinitas. Sedimen didominasi pasir halus hingga sedang, dengan variasi antar stasiun yang memengaruhi persebaran jenis. Perbedaan kondisi berkaitan erat dengan karakteristik lokasi: Stasiun 1 terganggu aktivitas dermaga, Stasiun 2 dipengaruhi aliran sungai yang meningkatkan kekeruhan, sedangkan Stasiun 3 berdekatan mangrove dan minim gangguan sehingga kondisi paling baik. Disimpulkan bahwa ekosistem lamun masih dalam batas wajar namun mulai menunjukkan tanda tekanan lingkungan. Diperlukan pemantauan berkala dan pengaturan aktivitas masyarakat untuk menjaga kelestariannya.

Kata kunci: Indeks ekologi, Kawasan Konservasi PISISI, Kerapatan, Lamun, Tutupan.