

ABSTRAK

Devi Tirta Sari. 2026. *Penyusunan Ensiklopedia Digital Berbasis Monitoring Lamun Serta Biota Yang Berasosiasi Di Pantai Pidakan Pacitan Sebagai Media Edukasi Masyarakat*. Skripsi. Program Studi Pendidikan Biologi, FKIP, Universitas PGRI Madiun. Pembimbing (I) Nurul Kusuma Dewi, S.Si., M.Sc., (II) Ir. Ani Sulistyarsi, M.M., M.Si.

Monitoring ekosistem lamun penting untuk mengetahui kondisi padang lamun dan biota asosiasinya sebagai dasar pengelolaan serta konservasi wilayah pesisir. Ensiklopedia digital merupakan media yang efektif untuk menyampaikan informasi mengenai lamun dan biota asosiasi di Pantai Pidakan, Pacitan. Penelitian ini bertujuan menganalisis kondisi padang lamun melalui identifikasi jenis lamun, persentase penutupan, biota asosiasi, dan parameter lingkungan, serta menyusun ensiklopedia digital sebagai media edukasi masyarakat. Jenis penelitian ini adalah kuantitatif dengan metode transek-kuadrat plot berukuran 50×50 cm sebanyak 55 plot untuk pengamatan lamun, serta metode jelajah dan penangkapan langsung untuk identifikasi biota asosiasi serta metode (R&D) untuk ensiklopedia digital. Hasil penelitian menunjukkan hanya ditemukan satu spesies lamun, yaitu *Thalassia hemprichii* (Ehrenberg) Ascherson, dengan rata-rata persentase penutupan sebesar 24,79% yang termasuk kategori miskin/rusak. Dibandingkan penelitian tahun 2015 dengan penutupan 30,89% (kategori kurang kaya/kurang sehat), terjadi penurunan sebesar 6,10%. Penurunan tersebut dipengaruhi oleh faktor alami berupa substrat pasir dan pecahan karang mati, serta arus dan gelombang pasang surut yang relatif kuat sehingga menghambat pertumbuhan lamun. Selain itu, aktivitas manusia seperti pengambilan biota laut dan kegiatan wisata turut berkontribusi terhadap penurunan kondisi padang lamun. Berdasarkan data Badan Pusat Statistik Kabupaten Pacitan, jumlah kunjungan wisatawan ke Pantai Pidakan meningkat pada periode 2022–2024, dengan peningkatan yang signifikan pada tahun 2024 hingga mencapai 111.746 pengunjung, yang berpotensi meningkatkan tekanan terhadap ekosistem padang lamun. Ditemukan 12 spesies biota asosiasi, terdiri atas 10 spesies makroinvertebrata dan 2 spesies makroalga. Parameter lingkungan masih mendukung pertumbuhan lamun dan kehidupan biota asosiasi. Meskipun mengalami penurunan kondisi, padang lamun Pantai Pidakan tetap berperan sebagai habitat penting bagi berbagai organisme laut. Ensiklopedia digital yang dikembangkan memperoleh persentase kelayakan sebesar 85,07% dengan kualifikasi sangat baik, sehingga dinyatakan layak digunakan sebagai media edukasi masyarakat.

Kata kunci: Ensiklopedia digital, monitoring lamun dan biota asosiasi, parameter lingkungan

ABSTRACT

Devi Tirta Sari. 2026. Development of a Digital Encyclopedia Based on Monitoring of Seagrass and Associated Biota at Pidakan Beach, Pacitan, as a Medium for Public Education. Thesis. Biology Education Study Program, FKIP, Universitas PGRI Madiun. Advisors: (I) Nurul Kusuma Dewi, S.Si., M.Sc., (II) Ir. Ani Sulistyarsi, M.M., M.Si.

Keywords: Digital encyclopedia, seagrass and associated biota monitoring, environmental parameters

Monitoring seagrass ecosystems is essential for understanding the condition of seagrass beds and their associated biota as a basis for coastal zone management and conservation. A digital encyclopedia is an effective medium for conveying information about seagrass and its associated biota at Pidakan Beach, Pacitan. This study aims to analyze the condition of seagrass beds through the identification of seagrass species, coverage percentage, associated biota, and environmental parameters, as well as to develop a digital encyclopedia as a medium for public education. This was a quantitative study using a 50×50 cm square transect plot method with 55 plots for seagrass observation, as well as survey and direct capture methods for identifying associated biota, and research and development (R&D) methods for the digital encyclopedia. The results showed that only one seagrass species was found, namely *Thalassia hemprichii* (Ehrenberg) Ascherson, with an average coverage percentage of 24.79%, which falls into the poor/damaged category. Compared to a 2015 study that recorded 30.89% coverage (classified as “less rich/less healthy”), there was a 6.10% decline. This decline was influenced by natural factors such as sandy substrates and fragments of dead coral, as well as relatively strong currents and tidal waves that hinder seagrass growth. In addition, human activities such as the harvesting of marine organisms and tourism also contributed to the decline in the condition of the seagrass beds. According to data from the Pacitan Regency Central Statistics Agency, the number of tourist visits to Pidakan Beach increased during the 2022–2024 period, with a significant rise in 2024 to 111,746 visitors, which could potentially increase pressure on the seagrass bed ecosystem. Twelve associated species were identified, consisting of 10 macroinvertebrate species and 2 macroalgae species. Environmental parameters still support seagrass growth and the survival of associated organisms. Despite the decline in its condition, the Pidakan Beach seagrass bed continues to serve as a vital habitat for various marine organisms. The digital encyclopedia developed achieved a feasibility rating of 85.07% with a “very good” qualification, thereby being deemed suitable for use as a public education tool.