

ABSTRAK

Rully Dwi Wahyuningrum, 2026. Penyusunan Ensiklopedia Digital Berbasis Monitoring Lamun serta Biota yang Berasosiasi di Pantai Tawang Pacitan sebagai Media Edukasi Masyarakat. Skripsi. Program Studi Pendidikan Biologi, FKIP, Universitas PGRI Madiun. Pembimbing (I) Nurul Kusuma Dewi, S.Si., M.Sc. (II) Drs. R. Bakti Kiswardianta, M.Pd.

Ekosistem padang lamun di pesisir Kabupaten Pacitan rentan terhadap aktivitas antropogenik dan dinamika lingkungan. Penelitian ini bertujuan memonitoring struktur komunitas lamun, menganalisis keanekaragaman biota asosiasi di zona intertidal Pantai Tawang, serta menyusun ensiklopedia digital sebagai media edukasi menggunakan metode *Research and Development* (R&D). Pengumpulan data ekologi dilakukan melalui survei lapangan dengan teknik purposive sampling, menggunakan transek garis dan plot kuadrat 50x50 cm, merujuk Kepmen LH No. 200 Tahun 2004. Hasil penelitian menunjukkan ekosistem lamun di Pantai Tawang bersifat monospesifik, hanya ditumbuhi *Thalassia hemprichii* dengan rata-rata tutupan 31%. Angka ini menurun dari pencatatan sebelumnya (37,66%) dan berstatus "Rusak" (Kurang Sehat/Kurang Kaya). Penurunan ini diduga akibat tingginya aktivitas perahu nelayan di Tempat Pelelangan Ikan (TPI) Tawang yang memicu kekeruhan perairan sehingga menghambat proses fotosintesis lamun, serta diperparah oleh anomali parameter abiotik ekstrem (suhu 30 °C, salinitas 3,63 ‰, pH 10,40), meskipun kadar oksigen terlarut (7,16 mg/L) ideal. Komunitas biota asosiasi tersusun atas 10 spesies, didominasi oleh 7 spesies makroinvertebrata dan 3 spesies makroalga. Sebagai luaran edukasi, ensiklopedia digital dinyatakan sangat layak berdasarkan validasi ahli materi (95%) dan ahli media (84%), serta meraup skor respons masyarakat 88% dengan kualifikasi sangat baik. Pemantauan ekologi dan pengembangan media literasi ini menjadi landasan penting bagi upaya konservasi pesisir berkelanjutan.

Kata kunci: Padang lamun, Biota asosiasi, Ensiklopedia digital.

ABSTRACT

Rully Dwi Wahyuningrum, 2026. Development of a Digital Encyclopedia Based on the Monitoring of Seagrass and Associated Biota at Tawang Beach, Pacitan, as a Community Educational Medium. Skripsi. Program Studi Pendidikan Biologi, FKIP, Universitas PGRI Madiun. Supervisor (I) Nurul Kusuma Dewi, S.Si., M.Sc. (II) Drs. R. Bakti Kiswardianta, M.Pd.

Keywords: Seagrass beds, Associated biota, Digital encyclopedia.

Seagrass meadow ecosystems on the coast of Pacitan Regency are vulnerable to anthropogenic activities and environmental dynamics. This study aims to monitor the seagrass community structure, analyze the diversity of associated biota in the intertidal zone of Tawang Beach, and develop a digital encyclopedia as an educational medium using the Research and Development (R&D) method. Ecological data collection was conducted through a field survey with a purposive sampling technique, using line transects and 50x50 cm quadrat plots, referring to the Ministry of Environment Decree (Kepmen LH) No. 200 of 2004. The results showed that the seagrass ecosystem at Tawang Beach is monospecific, solely inhabited by *Thalassia hemprichii* with an average coverage of 31%. This figure decreased from the previous record (37.66%) and is classified as "Damaged" (Less Healthy/Poor). This decline is suspected to be due to high fishing boat activity at the Tawang Fish Auction Place (TPI), triggering water turbidity that hinders seagrass photosynthesis. This is exacerbated by extreme abiotic parameter anomalies (temperature 30 °C, salinity 3.63 ‰, pH 10.40), although dissolved oxygen levels (7.16 mg/L) remain ideal. The associated biota community consists of 10 species, dominated by 7 macroinvertebrate species and 3 macroalgae species. As an educational output, the digital encyclopedia was declared highly feasible based on validations from material experts (95%) and media experts (84%), obtaining a public response score of 88% with an excellent qualification. This ecological monitoring and literacy media development serve as a crucial foundation for sustainable coastal conservation efforts.