

Moch. Fatich Choirul Rozik NPM. 180351100084. Estimasi Biomasa Dan *Mangrove Health Index* (MHI) Menggunakan Aplikasi MonMang2 Untuk Monitoring Di Wisata Mangrove Tajungan Kabupaten Bangkalan, Madura. Dibawah Bimbingan **Dr. Firman Farid Muhsoni, S.Pi., M. Sc.**

ABSTRAK

Hutan mangrove merupakan salah satu ekosistem pesisir yang memiliki peranan penting dalam menjaga keseimbangan lingkungan. Secara ekologis, mangrove berfungsi sebagai pelindung pantai dari abrasi dan gelombang laut, penahan intrusi air laut, serta habitat penting bagi berbagai jenis biota pesisir. Selain itu, mangrove juga berkontribusi besar dalam mitigasi perubahan iklim global melalui kemampuan menyerap dan menyimpan karbon (*carbon sequestration*). Penelitian ini bertujuan untuk mengestimasi biomasa dan menilai kondisi kesehatan mangrove melalui pendekatan *Mangrove Health Index* (MHI) dengan memanfaatkan aplikasi MonMang2 sebagai alat bantu monitoring di Kawasan Wisata Mangrove Tajungan, Kabupaten Bangkalan, Madura. Metode yang digunakan meliputi pengumpulan data lapangan pada masing-masing plot pengamatan, identifikasi jenis mangrove, perhitungan indeks nilai penting, pengukuran tutupan kanopi, dan perhitungan MHI. Hasil penelitian menunjukkan bahwa terdapat enam jenis mangrove yang teridentifikasi, yaitu *Rhizophora mucronata*, *Rhizophora apiculata*, *Avicennia alba*, *Sonneratia alba*, dan *Rhizophora stylosa*. Nilai Indeks Nilai Penting (INP) tertinggi ditemukan pada zona 5 sebesar 234,30, sedangkan nilai terendah terdapat pada zona 3 sebesar 15,48. Rata-rata tutupan kanopi sebesar 76,32% mengindikasikan bahwa kondisi ekosistem mangrove tergolong padat dan sehat. Sementara itu, nilai rata-rata MHI yang diperoleh sebesar 66,61 juga menunjukkan bahwa hutan mangrove di lokasi penelitian termasuk dalam kategori cukup sehat. Dengan demikian, integrasi antara estimasi biomasa dan MHI melalui aplikasi MonMang2 dapat menjadi pendekatan efektif dalam memantau kondisi ekosistem mangrove dan memberikan dasar ilmiah bagi upaya pelestarian serta pengelolaan secara berkelanjutan.

Kata kunci: Indeks Nilai Penting, Tutupan Kanopi, *Mangrove Health Index*

Moch. Fatich Choirul Rozik NPM. 180351100084. Biomass Estimation and Mangrove Health Index (MHI) Assessment Using the MonMang2 Application for Monitoring in the Tajungan Mangrove Ecotourism Site, Bangkalan, Madura. Supervised by **Dr. Firman Farid Muhsoni, S.Pi., M.Sc.**

ABSTRACT

Mangrove forests are one of the coastal ecosystems that play a crucial role in maintaining environmental balance. Ecologically, mangroves function as natural barriers against coastal abrasion and wave action, prevent seawater intrusion, and serve as vital habitats for various coastal biota. In addition, mangroves significantly contribute to global climate change mitigation through their ability to absorb and store carbon (carbon sequestration). This study aims to estimate biomass and assess the health condition of mangroves using the *Mangrove Health Index* (MHI) approach by utilizing the MonMang2 application as a monitoring tool in the Mangrove Tourism Area of Tajungan, Bangkalan Regency, Madura. The methods used include field data collection at each observation plot, identification of mangrove species, calculation of *Importance Value Index* (IVI), canopy cover measurement, and MHI assessment. The results showed that six mangrove species were identified: *Rhizophora mucronata*, *Rhizophora apiculata*, *Avicennia alba*, *Sonneratia alba*, and *Rhizophora stylosa*. The highest IVI was found in zone 5 with a value of 234.30, while the lowest was in zone 3 with a value of 15.48. The average canopy cover was 76.32%, indicating that the mangrove ecosystem condition is dense and healthy. Meanwhile, the average MHI value of 66.61 also shows that the mangrove forest in the study area falls into the moderately healthy category. Therefore, the integration of biomass estimation and MHI through the MonMang2 application can be an effective approach in monitoring the condition of mangrove ecosystems and provides a scientific basis for sustainable conservation and management efforts.

Kata kunci: *Importance Value Index*, *Canopi Coverage*, *Mangrove Health Index*