

Arista Tri Nias Indarti, 220341100104, Estimasi Stok Karbon Pada Sedimen Di Ekowisata Mangrove Di Desa Bancaran, Bangkalan. Dibawah Bimbingan **Dr. Maulinna Kusumo Wardhani, S.Kel., M.Si.**

ABSTRAK

Ekosistem mangrove merupakan salah satu penyimpan karbon biru (*blue carbon*) yang berperan penting dalam mitigasi perubahan iklim, terutama melalui penyimpanan karbon pada sedimen. Penelitian ini bertujuan untuk menganalisis jenis dan kerapatan mangrove serta mengestimasi stok karbon sedimen berdasarkan jenis sedimen dan kedalaman di Ekowisata Mangrove Desa Bancaran, Bangkalan. Penelitian menggunakan metode *purposive sampling* pada tiga titik pengamatan dengan tiga ulangan pada setiap titik. Sampel sedimen diambil pada kedalaman 0–15 cm dan 15–30 cm, kemudian dianalisis menggunakan metode *Loss on Ignition* (LOI). Analisis data meliputi perhitungan *bulk density*, kandungan karbon organik, stok karbon, serta uji Shapiro–Wilk, One-Way ANOVA, dan Kruskal–Wallis. Hasil penelitian menunjukkan bahwa jenis mangrove yang ditemukan terdiri atas *Rhizophora apiculata*, *Rhizophora mucronata*, *Avicennia marina*, dan *Sonneratia alba*. Stok karbon sedimen tertinggi ditemukan pada sedimen pasir dibandingkan pasir berlempung. Berdasarkan kedalaman, lapisan 15–30 cm memiliki rata-rata stok karbon sebesar $69,98 \pm 7,19$ MgC/Ha, lebih tinggi dibandingkan lapisan 0–15 cm sebesar $64,60 \pm 5,81$ MgC/Ha, namun perbedaannya tidak signifikan ($p > 0,05$). Hasil penelitian menunjukkan bahwa karakteristik sedimen dan kondisi vegetasi mangrove memengaruhi kemampuan penyimpanan karbon sedimen di kawasan penelitian.

Kata kunci: mangrove, sedimen, stok karbon, blue carbon, Loss on Ignition (LOI)

Arista Tri Nias Indarti, 220341100104, Estimation Of Carbon Stocks In Sediments At The Mangrove Ecotourism Site In Bancaran Village, Bangkalan. Dibawah Bimbingan **Dr. Maulinna Kusumo Wardhani, S.Kel., M.Si.**

ABSTRAK

*Mangrove ecosystems are one of the most important blue carbon reservoirs, playing a significant role in climate change mitigation through long-term carbon storage in sediments. This study aimed to analyze mangrove species and density and to estimate sediment carbon stocks based on sediment type and depth in the Mangrove Ecotourism Area of Bancaran Village, Bangkalan. The research employed a purposive sampling method at three sampling stations with three replicates at each station. Sediment samples were collected at depths of 0–15 cm and 15–30 cm and analyzed using the Loss on Ignition (LOI) method. Data analysis included the calculation of bulk density, organic carbon content, sediment carbon stock, and statistical analyses using the Shapiro–Wilk test, One-Way ANOVA, and Kruskal–Wallis test. The results showed that the mangrove species identified were *Rhizophora apiculata*, *Rhizophora mucronata*, *Avicennia marina*, and *Sonneratia alba*. The highest sediment carbon stock was found in sandy sediments compared to sandy loam sediments. Based on sediment depth, the 15–30 cm layer had a higher average carbon stock (69.98 ± 7.19 MgC/Ha) than the 0–15 cm layer (64.60 ± 5.81 MgC/Ha), although the difference was not statistically significant ($p > 0.05$). These findings indicate that sediment characteristics and mangrove vegetation conditions influence the carbon storage capacity of sediments in the study area.*

Keywords: mangrove, sediment, carbon stock, blue carbon, Loss on Ignition (LOI)