

Muhammad Naufal Hisyam. NPM 20.03.4.1.1.00073. Analisis Hubungan Antara Kerapatan Mangrove dengan Akumulasi Samah Laut Anorganik di Kawasan Wisata Mangrove Wonorejo, Surabaya. Dibawah Bimbingan Jihannuma Adibiah Nurdini, M.T

ABSTRAK

Ekosistem mangrove mempunyai fungsi ekologis yang penting sebagai pelindung kawasan pesisir sekaligus perangkap alami berbagai material yang terbawa arus, termasuk sampah anorganik. Penelitian ini bertujuan untuk menganalisis karakteristik akumulasi sampah laut anorganik, serta mengetahui hubungan antara kerapatan mangrove dengan akumulasi sampah laut anorganik di kawasan wisata Mangrove Wonorejo, Surabaya. Penelitian dilakukan pada bulan Oktober – November 2025 menggunakan metode *Line Plot Transect* pada tiga stasiun pengamatan. Data yang dikumpulkan yaitu kerapatan mangrove dan akumulasi sampah laut berdasarkan jumlah, massa dan jenis sampah. Analisis hubungan antar variabel dilakukan menggunakan uji korelasi Pearson dan regresi linier sederhana.

Hasil penelitian menunjukkan bahwa kerapatan mangrove pada stasiun I sebesar 1366,67 ind/ha (sedang), stasiun II sebesar 866,67 ind/ha (jarang) dan pada stasiun III sebesar 1766,67 ind/ha (padat). Sampah anorganik yang ditemukan di setiap stasiun didominasi oleh sampah plastik. Akumulasi sampah tertinggi ditemukan pada stasiun III dengan jumlah rata-rata 77,33 item dan massa 1838 gram, dan terendah pada stasiun II dengan jumlah 31 item dan massa 699,67 gram. Hasil uji korelasi menunjukkan bahwa hubungan antara kerapatan mangrove dengan massa sampah menunjukkan korelasi positif sangat kuat dan signifikan ($r = 0,998$; $p < 0,05$). Dengan demikian, dapat disimpulkan bahwa semakin tinggi kerapatan mangrove maka semakin besar pula massa sampah laut anorganik yang terakumulasi di kawasan mangrove.

Kata kunci: Kerapatan mangrove, sampah laut anorganik, akumulasi sampah, ekosistem mangrove, Wonorejo.

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ABSTRACT

Mangrove ecosystems play an important ecological role as coastal protection and natural traps for materials transported by water currents, including inorganic marine debris. This study aimed to analyze mangrove density, identify the characteristics of inorganic marine debris accumulation and determine the relationship between mangrove density and inorganic marine debris accumulation in the Wonorejo Mangrove Ecotourism Area, Surabaya. The research was conducted from October to November 2025 using the line plot transect method at three observation stations. Data collected included mangrove density and inorganic marine debris accumulation based on quantity, mass and debris categories. The relationship between variables was analyzed using Pearson correlation and simple linear regression.

The results showed that tree-level mangrove density was 1.366.67 ind/ha (moderate) at station I, 866.67 ind/ha (sparse) at station II, and 1.766.67 ind/ha (dense) at station III. Plastic debris was the dominant type of inorganic marine debris found at all stations. The highest debris accumulation was recorded at station III with an average of 77.33 items and a mass of 1.838 g. While the lowest accumulation occurred at station II with 31 items and mass of 699.67 g. Pearson correlation analysis indicated a very strong positive relationship between mangrove density and debris quantity ($r = 0.968$), although it was not statistically significant ($p > 0.05$). Meanwhile, mangrove density and debris mass showed a very strong and significant positive correlation ($r = 0.998$; $p > 0.05$). These findings indicate that higher mangrove density tends to increase the accumulation of inorganic marine debris mass within the mangrove ecosystem.

Keywords: mangrove density, inorganic marine debris, debris accumulation, mangrove ecosystem, Wonorejo