

HUBUNGAN FAKTOR FISIK – KIMIA PERAIRAN DENGAN KEPADATAN MAKROBENTHOS DI KAWASAN MANGROVE PULAU KARIMUNJAWA TAMAN NASIONAL KARIMUNJAWA

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INTISARI

Hutan mangrove merupakan tipe hutan yang tumbuh di daerah pasang surut air laut. Fungsi hutan mangrove salah satunya sebagai habitat makrobenthos. Makrobenthos adalah golongan hewan yang habitatnya di dalam atau permukaan sedimen dasar perairan dengan ukuran tubuh lebih dari 1 mm. Makrobenthos berperan penting dalam siklus nutrisi melalui proses *detrivory* sebagai dekomposer, serta bio-indikator lingkungan. Penelitian ini bertujuan untuk mengetahui komposisi vegetasi mangrove, mengetahui kepadatan makrobenthos, mengetahui faktor fisik-kimia perairan serta pengaruhnya dengan kepadatan makrobenthos.

Penelitian ini dilaksanakan di Hutan Alam Mangrove Pulau Karimunjawa Taman Nasional Karimunjawa. Luas Pulau Karimunjawa sebesar ± 200 ha, Intensitas Sampling yang digunakan sebesar 0,5% dan total petak ukur 100. Pengambilan data dibagi menjadi 3 zona yaitu zona depan, zona tengah, dan zona belakang. Pengambilan data vegetasi beserta faktor fisik-kimia perairan (suhu, kedalaman lumpur, kejernihan air, DO, salinitas dan pH) dilakukan pada petak ukur berukuran 10 m x 10 m sedangkan pengamatan makrobenthos dilakukan secara visual pada petak ukur berukuran 1 m x 1 m. Penempatan titik awal petak ukur dilakukan secara random dan petak ukur selanjutnya dibuat secara sistematis. Semua data yang diperoleh kemudian diuji menggunakan analisis *pearson* dan regresi linear berganda dengan bantuan software SPSS.

Hasil dari penelitian menunjukkan bahwa terdapat 12 jenis vegetasi mangrove dengan didominasi jenis *Rhizophora sp.* Hasil pengukuran faktor fisik kimia perairan pada ketiga zona yaitu rata-rata suhu sebesar 27, 25 °C, kedalaman lumpur sebesar 11,60 cm, kejernihan air sebesar 17,78 cm, DO sebesar 8,31 mg/L, salinitas sebesar 37,8 ‰, dan pH sebesar 7,05. Nilai rata – rata kepadatan makrobenthos pada ketiga zona sebesar 2,24 individu/m². Makrobenthos yang ditemukan berjumlah 20 jenis dengan didominasi kelas *Gastropoda*. Hasil dari analisis *pearson* menunjukkan semua variabel faktor fisik-kimia perairan berkorelasi positif terhadap kepadatan makrobenthos. Hasil dari analisis regresi linier berganda diperoleh nilai R² determinan zona depan sebesar 0,707, zona tengah sebesar 0,390 dan zona belakang sebesar 0,718.

Kata kunci : mangrove, makrobenthos, kepadatan

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CORRELATION OF PHYSICAL CHEMICAL FACTORS OF AQUATIC WITH MACROBENTHOS DENSITY IN MANGROVE AREA OF KARIMUNJAWA ISLAND, KARIMUNJAWA NATIONAL PARK

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ABSTRACT

Mangrove forest is a forest which grows in sea tides area. Mangrove forest has a function as a habitat for macrobenthos. Macrobenthos is biota which is living in the sediment or the surface of sediment water, the size of macrobenthos is more than 1 mm. Macrobenthos has main role in nutrient cycle through detritivory process, as a decomposer and environmental bio-indicator. This research aims to know mangrove vegetation composition, density of macrobenthos, and the influence of physical chemical factors of aquatic toward density of macrobenthos.

This research was conducted in mangrove forest Karimunjawa Island, Karimunjawa National Park. Area of Karimunjawa Island is ± 200 ha, the value of sampling intensity was 0,5%, and the total of compartment was 100 plots. There were 3 zones in this research: proximal, medial, and distal. The data were taken in this research are vegetation composition and physical chemical factors of aquatic (temperature, mud depth, water clarity, pH, salinity, and dissolved oxygen content) the measuring compartment is 10 m x 10 m. While, observation of macrobenthos was conducted visually in the compartment 1 m x 1 m. Compartment was layout by systematic sampling method with random start. All of data was analyzed by using correlation pearson and multiple linear regression with SPSS software.

The result has shown 12 species of mangrove species were found and was dominated by *Rhizophora sp.* The result measurement physical chemical factors of aquatic is the average temperature of 27,25 ° C, the depth of the mud is 11,60 cm, the water clarity of 17,78 cm, DO 8,31 mg/L, salinity of 37,8 ‰, and pH of 7,05. The result found average density index of macrobenthos in all three zones is 2,24 ind/m². While 20 macrobenthos spesies were found and was dominated by class from *Gastropoda*. The results of correlation pearson analysis showed that all physical chemical factors of aquatic were positively correlated with macrobenthos density. The results from multiple linear regression analysis showed determinant R² in proximal zone 0,707 , medial zone 0,390 and distal zone 0,718.

Keywords : mangrove, macrobenthos, density

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