

## KEANEKARAGAMAN JENIS DAN KEPADATAN MAKROBENTHOS PADA KAWASAN REHABILITASI *MANGROVE* DI PANTAI UTARA KABUPATEN PEMALANG, JAWA TENGAH

### INTISARI

Oleh :  
Puti Ranum<sup>1</sup>

Rehabilitasi mangrove penting untuk menjaga keseimbangan dan kestabilan ekosistem. Indikator keberhasilan rehabilitasi dari segi biologis dapat diindikasikan dengan keanekaragaman jenis dan kepadatan makrobenthos. Makrobenthos berperan sebagai dekomposer dalam ekosistem *mangrove* dan menyediakan hara bagi fotosintesis fitoplankton. Perbedaan tahun tanam *mangrove* di kawasan rehabilitasi Desa Mojo menyebabkan perbedaan kualitas habitat yang terbentuk, sehingga memengaruhi variasi keanekaragaman jenis dan kepadatan makrobenthos. Penelitian ini bertujuan untuk (i) mengetahui kerapatan vegetasi *mangrove*, diameter dan tinggi akar *Rhizophora mucronata* serta kualitas fisis dan kimiawi perairan pada tahun tanam 2001, 2006 dan 2011 (ii) mengetahui keanekaragaman dan kepadatan makrobenthos di kawasan rehabilitasi *mangrove* pada ketiga tahun tanam; (iii) mengetahui pengaruh kerapatan vegetasi *mangrove*, diameter dan tinggi akar *R. mucronata* serta kualitas fisis dan kimiawi perairan terhadap keanekaragaman jenis makrobenthos pada ketiga tahun tanam; (iv) mengetahui pengaruh kerapatan vegetasi *mangrove*, diameter dan tinggi akar *Rhizophora mucronata* serta kualitas fisis dan kimiawi perairan terhadap kepadatan makrobenthos pada ketiga tahun tanam.

Pengambilan data dilakukan pada tiga blok tanam yang berbeda (tahun tanam 2001, 2006 dan 2011). Setiap blok tanam dibagi menjadi 3 zona berdasarkan lebar jalur hijaunya. 30 plot 5 x 5 m dibuat di setiap blok untuk dilakukan pengukuran suhu, DO, salinitas, pH air, kerapatan vegetasi, diameter dan tinggi akar *R. mucronata*. Plot 1 x 1 m diletakkan di dalam plot 5 x 5 m untuk dilakukan penaksiran jumlah dan jenis makrobenthos.

Hasil penelitian ini menunjukkan bahwa keanekaragaman jenis pada tahun tanam 2001 dan 2011 berbeda signifikan, sedangkan kepadatan makrobenthos berbeda signifikan pada tahun tanam 2001 dan 2006. Analisis korelasi menunjukkan pada tahun 2001 diameter *R. mucronata* berkorelasi signifikan dengan kepadatan makrobenthos dengan nilai  $r = 0,554$ . Analisis regresi menunjukkan adanya pengaruh variabel DO dan pH pada ketiga tahun tanam terhadap keanekaragaman jenis makrobenthos dengan nilai  $R^2 = 23,4\%$ .

Kata kunci : makrobenthos, *mangrove*, rehabilitasi, DO, pH air

---

<sup>1</sup>Mahasiswa Fakultas Kehutanan Universitas Gadjah Mada

## SPECIES DIVERSITY AND DENSITY OF MACROBENTHOS IN MANGROVE REHABILITATION AREA ALONG NORTH COAST OF PEMALANG REGENCY, CENTRAL JAVA

### ABSTRACT

By:  
Puti Ranum<sup>1</sup>

Mangrove rehabilitation is significant to maintain the stability of the ecosystems. Biologically, the successful of rehabilitation action can be indicated from the species diversity and density of macrobenthos. Macrobenthos plays important role as decomposers in the mangrove ecosystem and provides nutrients for photosynthesis by phytoplankton. Different plantation periods of mangrove rehabilitation area in Mojo village may cause different habitat quality, thus affecting the variations of species diversity and density of macrobenthos. This study aimed (i) to identify the mangrove vegetation density, *Rhizophora mucronata* stem diameter size and root height, and also the physical chemical water quality on different plantation periods; (ii) to identify the species diversity and density of macrobenthos in the mangrove rehabilitation area on different plantation periods; (iii) to identify the effect of mangrove vegetation density, *Rhizophora mucronata* stem diameter size and root height, and also the physical chemical water quality against the species diversity of macrobenthos throughout three different plantation periods; (iv) to identify the effect of mangrove vegetation density, *R. mucronata* stem diameter size and root heights, and also the physical chemical water quality against the density of macrobenthos with three different plantation periods.

Data collection was carried out on three different plantation blocks (with plantation periods: 2001, 2006, and 2011). Every plantation block is divided into three different zones based on the green belt width. Thirty plots of 5 × 5 m were established in each block; temperature, dissolved oxygen (DO), salinity, water pH, vegetation density, *R. mucronata* DBH and root height were measured in each plot. A 1 × 1 m plot was also placed inside the 5 × 5 m plot to estimate the number of each species of macrobenthos.

The results show that the species diversity of macrobenthos among 2001 and 2011 plantation periods are different significantly, and the density of macrobenthos among 2001 and 2006 plantation periods are different significantly. The correlation analysis show that the *R. mucronata* DBH has a significant correlation with species density of macrobenthos which has  $r = 0,554$ . The regression model resulted from analysis the relationship between parameters measured shows that there is relationship between DO and water pH from three plantation periods and macrobenthos species diversity which has  $R^2 = 23,4 \%$ .

Keywords : macrobenthos, mangrove, rehabilitation, DO, water pH

<sup>1</sup>Student of Forestry Faculty, Gadjah Mada University