

RINGKASAN

LUTHVI NURWULANDARI. Estimasi Simpanan Fosfor (P) pada Lamun di Perairan Pesisir Timur dan Utara Pulau Bintan. Dibimbing oleh ANDI ZULFIKAR dan TRI APRIADI.

Perairan Pesisir Timur dan Utara Pulau Bintan yang terletak di Kepulauan Riau merupakan wilayah konservasi lamun dengan tingkat keanekaragaman dan persentase tutupan yang cukup tinggi. Selain berperan sebagai penyerap dan penyimpan karbon, lamun juga memiliki potensi dalam menyimpan fosfor di lingkungan perairan. Penelitian ini bertujuan untuk mengestimasi simpanan fosfor (P) pada lamun di Perairan Pesisir Timur dan Utara Pulau Bintan serta menganalisis hubungan antara parameter ekologis lamun, yaitu kerapatan, tutupan, dan biomassa, terhadap kandungan fosfor tersebut. Penelitian dilakukan pada enam lokasi dengan metode survei lapangan dan teknik *hierarchical sampling*. Sampel lamun, substrat, dan air dikumpulkan dan dianalisis di laboratorium untuk mengukur kandungan fosfor menggunakan metode spektrofotometri. Hasil penelitian menunjukkan bahwa kerapatan lamun tertinggi ditemukan di Pengudang (816 tegakan/m^2) sedangkan kerapatan lamun terendah ditemukan di Berakit 2 (107 tegakan/m^2), tutupan lamun tertinggi berada di Teluk Bakau 1 (83,5%) sedangkan tutupan lamun terendah berada di Teluk Bakau 2 (43,1%), serta biomassa tertinggi ditemukan di Pengudang ($138,55 \text{ gr/m}^2$) sedangkan biomassa terendah ditemukan di Berakit 2 ($19,39 \text{ gr/m}^2$). Simpanan fosfor tertinggi tercatat di Berakit 2 (0,321%) sedangkan simpanan fosfor terendah di Teluk Bakau 2 (0,258%). Korelasi antara tutupan dan kandungan fosfor menunjukkan hubungan yang positif menandakan bahwa peningkatan tutupan lamun berpotensi meningkatkan kapasitas penyimpanan fosfor.

Kata kunci: Bintan, Fosfor, Konservasi, Lamun

SUMMARY

LUTHVI NURWULANDARI. Estimation of Phosphorus Storage in Seagrass in the Coastal Waters of Eastern and Northern Bintan Island. Supervised by ANDI ZULFIKAR and TRI APRIADI.

The coastal waters of Eastern and Northern Bintan Island, located in the Riau Archipelago, are recognized as seagrass conservation areas with relatively high diversity and coverage percentages. In addition to their role as carbon sinks and storage, seagrass meadows also have the potential to store phosphorus in the aquatic environment. This study aims to estimate phosphorus (P) storage in seagrass within the coastal waters of Eastern and Northern Bintan Island and to analyze the relationship between seagrass ecological parameters-namely density, coverage, and biomass-and phosphorus content. The research was conducted at six locations using field surveys and hierarchical sampling techniques. Seagrass, substrate, and water samples were collected and analyzed in the laboratory to measure phosphorus content using spectrophotometric methods. The results showed that the highest seagrass density was found in Pengudang (816 shoots/m²), while the lowest was in Berakit 2 (107 shoots/m²). The highest seagrass coverage was recorded in Teluk Bakau 1 (83.5%), and the lowest in Teluk Bakau 2 (43.1%). The highest biomass was observed in Pengudang (138.55 g/m²), whereas the lowest was in Berakit 2 (19.39 g/m²). The greatest phosphorus storage was recorded at Berakit 2 (0.321%), while the lowest was at Teluk Bakau 2 (0.258%). The correlation analysis between seagrass coverage and phosphorus content revealed a positive relationship, indicating that increased seagrass coverage has the potential to enhance phosphorus storage capacity.

Keywords: Bintan, Conservation, Phosphorus, Seagrass