RINGKASAN

SHIKA MEYLANI PUTRI. Hambur Balik Akustik Pada Lamun Jenis *Enhalus acoroides* Dan *Thalassia Hemprichii* di Perairan Pengudang. Dibimbing oleh TRY FEBRIANTO dan ADITYA HIKMAT NUGRAHA.

Perairan Pengudang, Kabupaten Bintan merupakan salah satu wilayah pesisir yang memiliki padang lamun dengan dominasi jenis *E. acoroides* dan *T. hemprichii*. Penelitian ini bertujuan untuk menganalisis hubungan antara nilai *surface backscattering strength* (SS) dengan persentase tutupan lamun *E. acoroides* dan *T. hemprichii* di Perairan Pengudang. Pengambilan data dilakukan pada bulan Mei 2025 menggunakan instrumen *singlebeam echosounder* SIMRAD EK 15 dengan frekuensi 200 kHz untuk memproleh data akustik. Pengukuran tutupan lamun dilakukan melalui metode survei lapangan dengan *purposive sampling* menggunakan transek kuadran berukuran 50 x 50 cm, serta dokumentasi visual menggunakan *underwater camera*. Sebanyak 15 titik pengamatan diambil untuk masing-masing jenis lamun. Data akustik diolah menggunakan perangkat lunak ESP3 untuk memperoleh nilai *volume backscattering strength* (Sv) dan *surface backscattering strength* (SS). Hasil penelitian menunjukkan bahwa rata-rata persentase tutupan lamun *E. acoroides* sebesar 63% dan *T. hemprichii* sebesar 74%, yang tergolong dalam kategori padat. Nilai SS lamun *E. acoroides* berada pada rentang −47,41 dB hingga −31,93 dB, sedangkan nilai SS lamun *T. hemprichii* berkisar antara −56,18 dB hingga −32,93 dB. Analisis regresi linier sederhana menunjukkan adanya hubungan positif dan signifikan antara nilai SS dan tutupan lamun pada kedua spesies. Hubungan antara SS dan tutupan lamun *E. acoroides* mengikuti persamaan regresi $y = 0{,}1279 \ln(x) - 47{,}11$ dengan koefisien determinasi $R^2 = 0{,}720$, sedangkan hubungan antara SS dan tutupan lamun *T. hemprichii* mengikuti persamaan regresi $y = 0{,}3467 \ln(x) - 69{,}837$ dengan nilai $R^2 = 0{,}698$.

Kata kunci: Akustik perairan, Lamun, Perairan Pengudang, *Surface backscattering strength* (SS), Tutupan lamun.

SUMMARY

SHIKA MEYLANI PUTRI. Acoustic Backscatter In Seagrass Species Enhalus acoroides and Thalassia hemprichii in Pengudang Waters. Supervised by TRY FEBRIANTO and ADITYA HIKMAT NUGRAHA.

Pengudang Waters, Bintan Regency, are a coastal area characterized by seagrass meadows dominated by *Enhalus acoroides* and *Thalassia hemprichii*. This study aimed to analyze the relationship between *surface backscattering strength* (SS) and the percentage cover of *E. acoroides* and *T. hemprichii* in Pengudang Waters. Data were collected in May 2025 using a SIMRAD EK15 single-beam echosounder operating at a frequency of 200 kHz to obtain acoustic measurements. Seagrass cover was assessed through field surveys using purposive sampling with 50 × 50 cm quadrat transects, supported by underwater photographic documentation. A total of 15 observation points were sampled for each seagrass species. Acoustic data were processed using ESP3 software to derive *volume backscattering strength* (Sv) and *surface backscattering strength* (SS). The results showed that the mean seagrass cover of *E. acoroides* was 63%, while *T. hemprichii* reached 74%, both classified as dense seagrass beds. SS values for *E. acoroides* ranged from −47.41 dB to −31.93 dB, whereas SS values for *T. hemprichii* ranged from −56.18 dB to −32.93 dB. Simple linear regression analysis indicated a positive and significant relationship between SS and seagrass cover for both species. The relationship between SS and *E. acoroides* cover followed the regression equation $y = 0.1279 \ln(x) - 47.11$ with coefficient of determination (R^2) of 0.720, while the relationship for *T. hemprichii* was described by $y = 0.3476 \ln(x) - 69.837$ with an R^2 value of 0.698.

Keywords: Hydroacoustic, Seagrass, Pengudang Waters, Surface backscattering strength, Seagrass coverage.