ABSTRAK

Sebagai negara kepulauan, potensi Indonesia di bidang kelautan dan perikanan sangat luar biasa. Secara ekologis, perairan laut dangkal memiliki peranan penting dalam ekosistem laut, baik secara langsung maupun tidak langsung dalam keberlangsungan hidup biota laut. Habitat perairan laut dangkal menjadi tempat berlindung dan tinggal bagi beberapa jenis spesies. Penelitian ini bertujuan untuk mendapatkan informasi habitat bentik di Pulau Payung, Kepulauan Seribu, serta mengevaluasi tingkat akurasinya. Survei dilakukan pada 12-14 Juni 2024 di Pulau Payung dengan pengambilan titik koordinat sebagai data lapangan. Penilaian akurasi dilakukan menggunakan *confusion matrix*. Algoritma *Random Forest* dan *Support Vector Machine* menghasilkan empat kelas habitat bentik, dengan dominasi kelas lamun. Hasil uji akurasi menunjukkan bahwa algoritma *Random Forest* memiliki tingkat akurasi sebesar 92,85%, sedangkan *Support Vector Machine* sebesar 85,70%. Hal ini membuktikan bahwa algoritma *Random Forest* lebih unggul dibandingkan *Support Vector Machine* dalam klasifikasi habitat bentik. Penelitian ini memberikan informasi penting bagi pengelolaan sumber daya laut, terutama dalam upaya konservasi dan deteksi perubahan lingkungan secara berkala.

***Kata kunci**: habitat bentik, Google Earth Engine, Support Vector Machine, Random Forest, Pulau Payung*

ABSTRACT

As an archipelagic country, Indonesia's potential in marine and fisheries sectors was remarkable. Ecologically, shallow marine waters played a crucial role in marine ecosystems, both directly and indirectly supporting the survival of marine biota. Shallow marine habitats served as shelter and habitat for various species. This study aimed to obtain information on benthic habitats in Payung Island, Kepulauan Seribu, and evaluate their accuracy. Surveys were conducted from June 12-14, 2024, in Payung Island, with field data collected from coordinate points. Accuracy assessment was performed using a confusion matrix. The Random Forest and Support Vector Machine algorithms produced four benthic habitat classes, predominantly seagrass. The accuracy test results showed that the Random Forest algorithm had an overall accuracy of 92.85%, while the Support Vector Machine had 85.70%. The results proved that the Random Forest algorithm was superior to the Support Vector Machine in benthic habitat classification. This study provided essential information for marine resource management, particularly in conservation efforts and periodic environmental change detection.

***Keywords**: benthic habitat, Google Earth Engine, Support Vector Machine, Random Forest, Payung Island*