

## INTISARI

Ketersediaan data dan informasi mengenai persentase tutupan terumbu merupakan hal penting yang dapat digunakan untuk monitoring kondisi terumbu karang, agar dapat dimanfaatkan dalam upaya pelestarian ekosistem terumbu karang. Pulau Parang memiliki ekosisten terumbu karang luas. Data mengenai informasi persentase tutupan terumbu karang di Pulau Parang belum ada. Penelitian ini bertujuan untuk: (1) memetakan persentase tutupan terumbu karang di Pulau Parang, Kepulauan Karimunjawa menggunakan Citra SPOT 7, dan (2) melakukan analisis spasial persentase tutupan terumbu karang di Pulau Parang, Kepulauan Karimunjawa. Citra yang digunakan adalah SPOT 7 (resolusi spasial 6 m). Metode klasifikasi yang digunakan adalah integrasi hasil segmentasi citra dan klasifikasi supervised dengan algoritma *support vector machine* (SVM). Hasil penelitian menunjukkan bahwa pemetaan habitat bentik memiliki akurasi sebesar 82,27% dan pemetaan persentase tutupan terumbu karang memiliki akurasi sebesar 55,43%. Beberapa faktor yang mempengaruhi persentase tutupan terumbu karang antara lain suhu, kecerahan, pH, salinitas, arus, sedimen, dan kedalaman perairan. Ditinjau dari suhu perairan, kecerahan, pH, dan salinitas, secara umum kondisi perairan di Pulau Parang ideal untuk pertumbuhan terumbu karang. Bagian barat dan utara pulau tergolong memiliki kecepatan arus yang rendah dibandingkan dengan sisi selatan dan timur, sehingga berpengaruh terhadap persentase tutupan terumbu karang pada kelas 75-100%, yang lebih sempit dibandingkan dengan sisi selatan dan timur Pulau Parang. Ditinjau dari kedalaman perairan, persentase tutupan terumbu karang 75%-100% cenderung ditemukan di kedalaman  $\pm 8$ m, yakni di sepanjang terumbu depan dibandingkan dengan daerah yang dekat dengan garis pantai. Sedimen dasar laut di perairan Pulau Parang didominasi oleh pasir yang memiliki butiran halus, yang cocok bagi habitat terumbu karang.

**Kata kunci:** terumbu karang, persentase tutupan terumbu karang, SPOT 7, *Support Vector Machine*, Pulau Parang.

## ABSTRACT

*The availability of data and information on the percentage of coral cover is important for monitoring the condition of coral reefs, so that they can be used in efforts to conserve coral reef ecosystems. Parang Island has a wide coral reef ecosystem. There is no data regarding the proportion of coral reef cover on Parang Island. This study aims to: (1) map the percentage of coral reef cover in Parang Island, Karimunjawa Islands using SPOT 7 image, and (2) conduct a spatial analysis of the percentage of coral reef cover on Parang Island, Karimunjawa Islands. The image used is SPOT 7 with 6m spatial resolution. The classification method used is the integration of image segmentation and supervised classification with a support vector machine (SVM) algorithm. The results showed that the benthic habitat mapping has an accuracy of 82.27% and the mapping of the percentage of coral reef cover has an accuracy of 55.43%. Several factors that affect the percentage of coral reef cover include temperature, water transparency, pH, salinity, currents, sediment, and water depth. In terms of water temperature, water transparency, pH, and salinity, in general the conditions of the waters on Parang Island are ideal for coral reef growth. The western and northern parts of the island are classified as having low current velocities compared to the south and east sides, so that it affects the percentage of coral reef cover in the 75-100% class, which is narrower compared to the south and east sides of Parang Island. Based on the depth of the waters, the percentage of coral reef cover of 75 -100% tends to be found at a depth of  $\pm 8m$  along the fore reef compared to areas close to the coastline. Parang Island is dominated by sand which has fine grains, which are suitable for coral reef habitats.*

**Keywords:** coral reefs, percentage of coral reef cover, SPOT 7, Support Vector Machine, Parang Island.