

## INTISARI

Pemecah gelombang ambang rendah (PEGAR) adalah struktur pelindung pantai yang tergolong baru dan belum banyak digunakan dibanding struktur pelindung pantai lainnya. Penelitian mengenai PEGAR masih terbatas mengenai kemampuan PEGAR dalam meredam gelombang dan respon pantai terhadap PEGAR. Sedangkan penelitian terhadap jumlah angkutan sedimen yang berpindah dari depan ke belakang PEGAR masih sangat terbatas. Berdasarkan pertimbangan tersebut penelitian ini dilakukan dengan mengamati jumlah angkutan sedimen dari depan PEGAR (*sea side*) ke belakang PEGAR (*land side*) dan parameter yang mempengaruhinya.

Penelitian ini dilakukan pada saluran gelombang berbahan *flexiglass* dengan panjang 18 m, lebar 0,3 m dan kedalaman 0,45 m. Parameter gelombang (tinggi dan periode) dan parameter bangunan (tinggi dan lebar) digunakan sebagai acuan dalam penelitian ini. Penelitian dilaksanakan dengan melakukan variasi gelombang, tinggi struktur dan kedalaman air.

Hasil penelitian menunjukkan jumlah sedimen berpindah cenderung bertambah terhadap bertambahnya nilai nilai  $\left(\frac{H_i}{L}\right) \cdot \left(\frac{R_c}{d}\right)$  sesuai dengan persamaan ( $y = 122,67x - 5,1776$ ) dengan nilai korelasi ( $R^2$ ) = 0,953. Gelombang pecah yang berada tepat di depan struktur memindahkan sedimen lebih banyak (1894,25 gr/jam) dibandingkan gelombang pecah yang berada jauh di depan struktur (104,5 gr/jam).

## ABSTRACT

The low crested breakwater (LCB) is considered as a new coastal protective structure which has not been widely used compared to other coastal protection structures. LCB has more advantages than conventional ones such as breakwaters, requiring lower cost and aesthetically not disturbing nature because of its position which is below sea level so it is suitable for beach tourism. Studies on low crested breakwaters are mostly about the ability to absorb energy waves and how beach responded to the structure. However, the study on the ability of this low crested breakwater such as a sand trap is still limited. Therefore, this study aims to observe the breakwater's performance as a sand trap for shore protection and the effect of the parameters on the performance.

This study was conducted on the wave generator flume with a length of 18 m, a width of 0.3 m and a depth of 0.45 m. Wave parameters (height and period) and structure parameters (height and width) were employed as a reference in this study. This research was conducted by varying the waves, height and water depth.

The results indicate that the number of transport sediment tends to be increased following parameters  $\left(\frac{H_i}{L}\right) \cdot \left(\frac{R_c}{d}\right)$  based on equation  $(y = 122.67x - 5.1776)$  with correlation  $(R^2) = 0.953$ . The type and position of a wave breaking also affect the amount of transport sediment. The breaking waves that occur in front of the LCB can lift more sediment (1894,25 gr/hour) than the breaking waves that occur far away from the LCB (104,5 gr/hour).