

عنوان مقاله:

Numerical Modeling of Stepped Floating Breakwaters Using Computational Fluid Dynamics

محل انتشار:

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خلاصه مقاله:

Stepped floating breakwater is made out of a π -type floating breakwater and a series of steps attached to the seaside and beachside of the floating breakwater. This paper investigates the performance of floating breakwaters with broad steps. In general, such layouts are suggested where strong beach protection is needed. Three types of stepped floating breakwater are investigated and their performances are compared to each other. OpenFOAM is employed for numerical modeling to study the hydrodynamic behavior of the three types of suggested stepped floating breakwaters. The most determinant parameter in evaluating the hydrodynamic performance of floating breakwaters is the transmission coefficient, defined by $C_t = H_t/H_i$, where H_i is the incident wave height and H_t represents the transmitted wave height. In this paper, results are analyzed based on their transmission coefficients. The results of numerical modeling show that the place where extra steps are added can have a considerable effect on the performance of the stepped floating breakwaters.

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