



Interaction of extreme waves with permeable wave-protective structures

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The interaction of extreme waves in hydro-wave tank with 3 types of wave-protective structures was investigated. The first type of structure was a pier having two pilings and a grillage (horizontal top plate). The space under the pier from rear of piling to the center of the grillage across-track direction was filled up with concrete blocks. The barriers (vertical plates) were hanged on the two pilings. At that case the rear barrier came into contact with the concrete blocks. The right side barrier was partly submerged into the fluid. The second type of structure differed from the first type with slits at the right side barrier. Area of the slits was 20 percent of submerged part of the barrier. The third type of structure was the metal frame filled up with stone layers, concrete blocks, and hexabits. The wavemaker produced the regular waves having large amplitude. The hydro-wave tank was 40 m length, 1 m height, and 0.7 m width. The wave-permeability and wave-reflectivity abilities of the structures and the force action taken up by the structures were studied. The results of the research are used in designing of wave-protective structures in harbors.