SCOUR CHARACTERISTICS AROUND PERFORATED CYLINDRICAL ARTIFICIAL REEF

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ABSTRACT
Artificial reef is a building or a structure that placed underwater which its characteristic likes natural coral reef. Artificial reef has changed its usage as the Submerged Breakwater. On the shallow water, artificial reef is vulnerable form scouring trouble and soil deformation. These can cause a main problem to the failure of artificial reef as submerged breakwater. In this research, the issue is about scouring characteristics and the maximum scouring approach on perforated cylindrical artificial reef, by using physical modeling of artificial reef model 1:10 scale, the result can be applied in scouring protection planning for perforated cylindrical artificial reef. From the result of the experiment in wave flume tank at ocean energy and enviromental laboratorium of Oceanic Engineering –ITS Surabaya, the highest maximum scouring is 3.2 cm and the lowest is 1 cm with average 1.4 cm. Scouring length reach maximum value at 14 cm and the minimum at 2 cm with average 4.4 cm and the distance scouring maximum location to the breakwater face is considered zero (0) or nothing. Non-dimensional parameter that used on the analyze of maximum scouring is Keulegan-Carpenter number, $KC = \left( \frac{H_{\text{in}}}{w_{\text{bw}}} \right)$ and of mobility parameter at the seafloor, $\psi = \left( \frac{H_{\text{in}}}{\frac{\Gamma \sinh (kh)}{g'd}} \right)^2$.

Keyword : Artificial Reef, Physical Modeling, Scouring Maximum