

KAJIAN EFEKTIVITAS PENANGANAN MUARA SUNGAI PEMALI SEBAGAI PENYALUR DEBIT BANJIR

Suparno

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Telah dipertahankan di depan Dewan Penguji
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ABSTRACT

Pemali River estuary is a part of Pemali River ranging from the ramification of Pemuda River to its coastal estuary in Java Sea. A problem in the Pemali River estuary was an increased process of sedimentation. A Detailed Design Planning of Pemali River Estuary (prior study) was conducted to examine the condition of the coastal estuary of Pemali River and to seek the efforts of controlling coastal destructions and recovering the function of Pemali River for channeling the flood discharge.

This study was conducted by determining three points of view in the part of the Pemali River Estuary to find out the effectiveness of control using banks and normalization done at the prior study with the simulation of Q_{25} flow using HEC-RAS 4.0 software. Parameters used to evaluate the effectiveness of control were based on flow velocity, maximum water level elevation, the tidal influence of the downstream, excavation volume of normalization, and heap volume of bank.

Result of the Q_{25} flow simulation indicates that the flow velocity at the prior study reached 1.75 m/s higher than that at thesis version (present study) of 1.41 m/s. Maximum water level elevation at the prior study reached 1.30 m higher than that at present study of 1.09 m. The tidal influence of downstream was comparable between the prior study and the present study, i.e. ± 500 m from the downstream. The control through the normalization of excavation volume of 1,430,188 m^3 was larger than that of the prior study of 916,177 m^3 , while the heightening of bank at the prior study reached 2.04 m larger than that at present study of 1.84 m. The control at the prior study's version made flood still run-off, while that in the thesis version (present study) not run-off because the maximum water level elevation was lower than the height of bank.

Keywords : Flood, HEC-RAS Model, Control Effectiveness