

PEMODELAN SPASIAL GENANGAN AKIBAT LUAPAN BANJIR DI SUNGAI SENGKARANG KABUPATEN PEKALONGAN

Naufal Mumtaz, Puji Utomo, S.T., M.Eng

Program Studi Teknik Sipil Fakultas Sains dan Teknologi Universitas Teknologi Yogyakarta;
naufal21mumtaz@gmail.com , *mr.pujjutomo@gmail.com*

ABSTRAK

Sungai Sengkarang memiliki aliran yang cukup besar pada saat musim hujan dan sering menimbulkan banjir yang menggenangi daerah bantaran sungai Sengkarang. Penelitian ini bertujuan untuk mengetahui kondisi genangan akibat luapan banjir yang terjadi. Manfaat penelitian ini dapat mengetahui debit maksimum yang dihasilkan debit rancangan, mengetahui titik luapan sungai Sengkarang akibat debit banjir. Dalam menghitung debit banjir sungai Sengkarang berbagai periode kala ulang digunakan metode HSS Snyder terhadap data curah hujan yang diambil dari stasiun Pekalongan Jeruk tahun 2012-2021. Hasil dari simulasi dibuat dengan program HEC-RAS 5.0.7 dengan kala ulang 2, 5, 10, 25, 50, dan 100 tahun. Rata-rata genangan akibat luapan yang di dapat ialah 1,3898 m di kala ulang 2 tahun, 1,4027 m di kala ulang 5 tahun, 1,4165 m di kala ulang 10 tahun, 1,4281 m di kala ulang 25 tahun, 1,4381m di kala ulang 50 tahun, dan 1,4523 m di kala ulang 100 tahun. Dampak genangan akibat luapan paling parah berada di kecamatan kedung wani yang mengalami banjir setinggi 1,802 m dikala ulang 2 tahun, 2,05 m dikala ulang 5 tahun, 2,474 m dikala ulang 10 tahun, 2,714 m dikala ulang 25 tahun, 3,276 m dikala ulang 50 tahun, dan 3,571 m dikala ulang 100 tahun.

Kata kunci: Debit Banjir, *HSS Snyder*, *HEC-RAS 5.0.7*

SPATIAL MODELING OF INDUCED INUNDATION OF OVERFLOWING FLOOD IN THE SENGKARANG RIVER PEKALONGAN DISTRICT

Naufal Mumtaz, Puji Utomo, S.T., M.Eng

Civil Engineering Study Program, Faculty of Science and Technology,
University of Technology Yogyakarta;
naufal21mumtaz@gmail.com , mr.pujiutomo@gmail.com

ABSTRACT

The Sengkarang River has a large enough flow during the rainy season and often causes floods that inundate the Sengkarang riverbanks. This study aims to determine the inundation conditions due to flood overflow that occurred. The benefit of this research is to find out the maximum discharge produced by the design discharge, to know the overflow point of the Sengkarang River due to flood discharge. In calculating the flood discharge of the Sengkarang River for various return periods, the Snyder HSS method was used for rainfall data taken from the Pekalongan Jeruk station in 2012-2021. The results of the simulations were made using the HEC-RAS 5.0.7 program with return periods of 2, 5, 10, 25, 50 and 100 years. The average inundation resulting from overflows is 1.3898 m for 2 year return, 1.4027 m for 5 year return, 1.4165 m for 10 year return, 1.4281 m for 25 year return, 1.4381m on the 50th birthday, and 1.4523m on the 100th birthday. The most severe impact of inundation due to overflow was in Kedung Wani sub-district which experienced flooding as high as 1,802 m for 2 year return, 2.05 m for 5 year return, 2,474 m for 10 year return, 2,714 m for 25 year return, 3,276 m for 50 year return. year, and 3.571 m on the 100th birthday.

Keywords: Flood Discharge, HSS Snyder, HEC-RAS 5.0.7