

# Judul Pengaruh Debit Banjir Terhadap Gerusan Pada Tebing Sungai Di Kecamatan Tompobulu Kabupaten Maros

The Effect of Flood Discharge on Erosion of River Cliffs in Tompobulu District, Maros Regency

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## ABSTRAK

Debit banjir merupakan faktor utama yang memengaruhi dinamika morfologi sungai, khususnya erosi tebing. Penelitian ini bertujuan menganalisis hubungan debit banjir terhadap tingkat erosi tebing Sungai Tompobulu, Kabupaten Maros. Metode yang digunakan adalah pendekatan kuantitatif deskriptif-analitis dengan analisis hidrologi (curah hujan rencana dan debit banjir menggunakan HSS Nakayasu) serta analisis hidraulika (parameter aliran dan gaya geser). Data primer diperoleh melalui pengukuran lapangan pada tiga segmen sungai (hulu, tengah, hilir), sedangkan data sekunder berupa curah hujan historis diperoleh dari BMKG. Hasil penelitian menunjukkan bahwa peningkatan debit banjir berbanding lurus dengan peningkatan kecepatan aliran, stream power, dan gaya geser, yang berdampak pada intensitas erosi tebing. Segmen tengah menunjukkan tingkat erosi paling tinggi akibat kombinasi debit besar, kondisi tebing yang tidak stabil, dan minimnya vegetasi. Temuan ini menegaskan pentingnya pengelolaan DAS dan perlindungan tebing sungai sebagai upaya mitigasi erosi dan banjir.

Kata Kunci:

Debit banjir, erosi tebing sungai, hidrologi, HSS Nakayasu, DAS Maros.

## ABSTRACT

*Flood discharge is a primary factor influencing river morphological dynamics, particularly riverbank erosion. This study aims to analyze the relationship between flood discharge and the level of riverbank erosion in the Tompobulu River, Maros Regency. The research employs a quantitative descriptive-analytical approach using hydrological analysis (design rainfall and flood discharge calculated with the Nakayasu Synthetic Unit Hydrograph) and hydraulic analysis (flow parameters and shear stress). Primary data were obtained from field measurements at three river segments (upstream, middle, and downstream), while secondary data consisted of historical rainfall records from the Meteorology, Climatology, and Geophysics Agency (BMKG). The results indicate that an increase in flood discharge is directly proportional to increases in flow velocity, stream power, and shear stress, which in turn intensify riverbank erosion. The middle segment exhibits the highest erosion rate due to the combination of large discharge, unstable bank conditions, and limited vegetation cover. These findings highlight the importance of watershed management and riverbank protection as effective measures for mitigating erosion and flood hazards*

*Keywords:*

Flood discharge, riverbank erosion, hydrology, Nakayasu Synthetic Unit Hydrograph, Maros Watershed