

KAJIAN KONSENTRASI SEDIMEN SUSPENSI PADA ANAK SUNGAI BRANTAS DI DESA TORONGREJO, KECAMATAN JUNREJO, KOTA BATU

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ABSTRAK : Sungai memiliki kerentanan terhadap erosi atau pengikisan lapisan tanah yang terus terbawa oleh aliran air permukaan sampai akhirnya masuk ke badan sungai dan menyebabkan terjadinya sedimentasi. Sedimentasi terutama sedimen suspensi menjadi sumber dari banyak permasalahan pada sumber-sumber air dikarenakan membawa sedimen bersamaan dengan aliran air. Berdasarkan hal tersebut menjadi penting untuk diketahui angkutan sedimen suspensi dalam menyelesaikan masalah pada sumber-sumber air, akan tetapi dalam perjalanannya penentuan angkutan sedimen suspensi seringkali tidak sesuai dengan keadaan yang sebenarnya dalam merepresentasikan nilai angkutan sedimen suspensi. Untuk mengatasi masalah tersebut dilakukan penelitian untuk melihat bagaimana hubungan antara debit aliran dengan debit angkutan sedimen suspensi. Penelitian dilakukan pada anak sungai Brantas yang terdapat di Desa Torongrejo, Kota Batu. Penelitian dilakukan sebanyak sepuluh (10) kali pengambilan sample pada waktu yang berbeda menggunakan alat Portable TSS Meter type TSS 740 Partech untuk mengetahui nilai konsentrasi sedimen suspensi pada tiap kedalaman aliran. Penelitian menunjukkan adanya hubungan antara debit aliran terhadap angkutan sedimen suspensi dengan persamaan $Q_s = 7.597 Q^{1.465}$, didapati pula hubungan antara debit aliran terhadap konsentrasi sedimen suspensi rata-rata dengan persamaan $C = 89.422 Q^{0.461}$, dan terakhir didapatkan besaran faktor eksponen Rouse berada antara *range* 0.013 – 0.080.

Kata Kunci : sedimen suspensi, angka rouse, pengukuran sedimen.

ABSTRACT: Rivers are susceptible to erosion or erosion of the soil layer which is carried by surface water flow until it finally enters the river body and causes sedimentation. Sedimentation, especially suspended sediment, is the source of many problems with water sources because it carries sediment along with the water flow. Based on this, it is important to know the suspension sediment transport in solving problems at water sources, but in its journey the determination of suspended sediment transport has been often not in accordance with the actual situation in representing the value of suspended sediment transport. To overcome this problem, a study was conducted to see how the relationship between flow rate and suspension sediment transport discharge. The research was conducted on a tributary of the Brantas river located in Torongrejo Village, Batu City. The study was conducted ten (10) times of sampling at different times using a Portable TSS Meter type TSS 740 patch tool to determine the value of the suspended sediment concentration at each flow depth. The research shows that there is a relationship between flow rate and suspension sediment transport with the equation $Q_s = 7.597 Q^{1.465}$. There is also a relationship between the flow rate and the average suspension sediment concentration with the equation $C = 89.422 Q^{0.461}$, and finally the exponential factor Rouse is located between the range 0.013 - 0.080.

Keywords: sediment suspension, rouse number, sediment measurement.