

## Estimation of Sediment Quantity of the Al-Meshkab Regulator Channel

Haider Addab<sup>1</sup> and Saleh I. Khassaf Al-Saadi<sup>2</sup>

Department of Civil and Environmental Engineering, Colorado State University

**Abstract.** The sediments transport of the Al-Meshkab regulator channel along a reach of the Euphrates in Iraq has been measured at twenty four cross-sections. The length of the study reach was 6 km upstream of the Al-Meshkab regulator. The study was divided into two parts, a practical part (field and laboratory) and a numerical part. The field measurements include: channel cross-sections, flow velocity profiles and average flow velocity, flow discharge, water surface width, water surface slope, sediment concentration, bed material samples as well as the specific gravity of bed sediment. The analysis also includes two models. First, a statistical model was used to fit the dimensionless form, and to predict a relationship between the sediment rate and the different variables. The adequacy of the model was checked using some statistical methods like the Analysis of Variance (ANOVA) to examine the differences between observed and predicted sediment rates. This indicated that no statistically significant difference could be detected between observed and computed sediment rates by using the statistical model, The second model developed by using the software program SSIIM (Sediment Simulation In Intakes with Multiblock option). The results of the SSIIM model were verified with the existing data and good agreement was obtained between the observed and computed values. Finally, this research was useful for the ministry of water resources in Iraq in order to determine the annual amount of sediment that transport in the reach. The observed total sediment discharge in the study region was ranged from (4.4368) to (14.3969) kg/sec during the normal case of water discharge 95.60m<sup>3</sup>/sec. While the computed total sediment discharge in the SSIIM Model ranged (3.29) to (14.48) kg/sec and for statistical Model ranged (6.44) to (14.41) kg/sec during water discharge 95.60m<sup>3</sup>/sec at the same above mentioned condition

---

<sup>1</sup> Department of Civil and Environmental Engineering, Colorado State University, [eng\\_haider80@yahoo.com](mailto:eng_haider80@yahoo.com)

<sup>2</sup> Department of Civil and Environmental Engineering, Basra University, Iraq, [must\\_khasaf69@yahoo.com](mailto:must_khasaf69@yahoo.com)