SUMMARY

Abdul Harist Fajaruddin, 135060400111004, Department of Water Resources Engineering, Faculty of Engineering, Brawijaya University, Januari 2018. *Study of Determination The Pollution Load Capacity on Brantas River Malang City Segmen Using Program Package QUAL2Kw*, *Academic Supervisors* : Ir. Moch. Solichin., MT., Ph.D and Dr.Eng Tri Budi Prayogo, ST., MT

Malang is a city located in East Java with an area of 252.1 km^2. One of the main rivers that source water for agricultural land and plantations in this city is the Brantas River. Based on data from Dispendukcapil in 2016 the population of Malang City reached 895,387 people. Population in Malang City in the last five years increased by 50,116 people compared to the year 2012 the population of Malang city as many as 845.252 people with an average increase in population as much as 1.454% from last year. With the increasing population and land conversion in the upper Brantas watershed area it is feared to cause water quality degradation. In this study will be discussed about the pollution load BOD, COD, DO, pH, Nitrate and temperature.

To analyze the water quality parameters along the river flow, it is necessary to have a control method which economically and technically can be justified, one of the method is by the water quality simulation model using QUAL2Kw Application because the use of this model has been recommended Decree of State Minister of Environment No. 110 Year 2003. This study modeled the Brantas River of Malang City from Pendem Bridge to Bumi Ayu Bridge along 21.57 km.

From this application obtained the results of the pollution load value and the capacity of each reach. The largest pollution loads are in the second reach for all parameters: 609.846 kg / day for TSS, 152.669 kg / day for BOD, and 995.976 kg / day for COD. This can be due to the distance at the longest reach of the longest so that the land use for the settlement is more than the other reach. The highest rated capacity occurs at reach 2, for TSS parameter 584,340 kg / day, BOD 127,164 kg / day, and COD 910,958 kg / day.

Keywords: QUAL2Kw, Brantas River, Water Quality