ANALYSIS OF CONCENTRATION AND DISTRIBUTION OF CHLOROPHYLL-A AND TSS (TOTAL SUSPENDED SEDIMENT) USING SATELLITE IMAGE LANDSAT-8 TO SEE WATER QUALITY IN PORONG RIVER ESTUARY (Case Study: Coastal Surabaya-Sidoarjo)

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ABSTRACT

Chlorophyll-a and TSS (Total Suspended Sediment) is one of the parameters is quite important to know the water quality in a region. Chlorophyll-a and TSS also be a parameter used to measure the level of water pollution and sedimentation caused by the disposal of certain materials into the water. Method of remote sensing satellite imagery can be a solution to the problem of research Chlorophyll-a and TSS, because this method is more efficient and effective in a broad spatial scale research and continuous. One of the satellite imagery that can be used are Landsat satellite imagery-8 in 2014.

Landsat satellite imagery-8 in 2013 have wavelengths that can be used to examine the Chlorophyll-a and TSS, multi-temporal, multi-spectral, has 11 bands with 16-bit specification, as more and more bits the better the appearance of the image, is more sensitive to differences in water sea at different depths and better able to distinguish objects on the display surface thus reducing interpretation. Process validation is done by comparing the value of Chlorophyll-a and TSS results of Ground Truth.

According to the Decree of the Environment (MOE) No. 12 of 2003 and PP. No. 82, 2001 is the normal content of TSS $\leq 50$ mg / L. The results demonstrate the value of TSS in the study area ranged from 0-150 mg / L, there are several locations that have a high enough that TSS values $> 50$ mg / L of 19%. According to Bohlen and Boynton, 1966, the ideal content of chlorophyll-a in a body of water is $\leq 15$ mg / L. Chlorophyll-a values in the study area ranged from 0-18.7 mg / L with details of the area that has a value of 0-15 mg / L reached 99.78%. Thus the condition of Chlorophyll-a is according to standard eligibility. Some
locations have indicated that water quality degradation if allowed to continue may damage the ecosystem in the area tersebut. Penelitian can be used to provide information about the condition of the waters in the estuary and surrounding Porong so useful for coastal zone management strategies in the future.

Keywords: Chlorophyll-a, TSS, satellite imagery, Landsat-8