Recent assessment of physico-chemical water quality in Malacca River using water quality index and statistical analysis

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Abstract. River are one of vital water resources for human and ecosystem, and it is important to monitored and controlled the river water quality. Malacca watershed is located at the centred of Malacca state, and one of the important attraction places for tourism and urbanization activity. The tremendous activity at Malacca river has led to water pollution issues and of river water quality. There are several cases of fish kills incident reported at the estuarine Malacca River. The objectives of present work are to assess water quality status of the Malacca river based on Water Quality Index (WQI) analysis and to investigate the trend of Chemical Oxygen Demand (COD) along the Malacca river from 2003 until 2012. Statistical analysis was done by using Pearson Correlation Coefficient Analysis based on water quality data collected from August 2014 until October 2014 at Malacca River. As a results, from the WQI analysis at four different times of sampling, Malacca River was classified into Class III, which is polluted river. The correlation analysis shows the strong correlation between PO_4^{3-} and TP; PO_4^{3-} and NH_3^+; TN and NH_3^+; COD and TSS; and COD and DO; at probability value, p equals to 0.01. As a conclusion, present work is crucial for water quality assessment to develop the suitable watershed management in order to sustain the river water quality. This study can be used for future study in developing water quality modelling and total maximum daily load (TMDL) approach.