

Lake water quality monitoring and prediction: natural attenuation

ABSTRACT

The Engineering Campus Lake in Universiti Putra Malaysia (UPM) receives urban run-off (non-point source) and treated wastewater (point source). The role of the lake as a natural attenuation plant will be assessed in this study by monitoring and predicting selected water quality parameters. Samples were collected at the inlet and outlet points of the lake and analyzed for physical, chemical and biological parameters from years 2009 to 2013. The results were compared with the standard values indicated in Environmental Quality Act (EQA) and Interim National Water Quality Standards (INWQS) in Malaysia. The average value for each water quality parameter tested in this study was used to classify the lake water. It was observed that several parameters show a high average value when compared to the limit fixed by regulations such as 36.28, 158.74 and 11.28mg/l for BOD, COD and DO, respectively. The removal efficiency of each parameter throughout the study period showed good results with the range value of, above 50%, when considering the lake natural attenuation. At the end, the prediction of each parameter for 3 years period by using trendline and its regression values were determined for future reference.

Keyword: Lake water; Water quality; BOD; Monitoring; Prediction; Lake