

IMPACT OF MONSOON RAINFALL ON DISSOLVED POLLUTANTS IN KRISHNA RIVER

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ABSTRACT

Krishna River is one of the major perennial rivers draining three important states of South India. Seasonal variations of rainfall in the river basin cause wide variations in quality of river water. With complete seasonal (wet season) rainfall as input for understanding the relationship, the effect of many individual storm events of different duration and intensity (occasionally during dry season) is examined during the study. The observed concentrations indicated two periods in the wet seasons: first, the stage where the effects of first flush are prominent (increase in concentration) and second, and the stage where the effects of dilution are significant (decrease in concentrations). However, some of the dissolved ions exhibited delayed responses due to the rainfall events. Possibly, these ions are bound to the soil in the basin or take considerable time for dissolution; hence, the lag effect is observed. The effect of lag on concentrations of magnesium, chlorides, sulphates, nitrates and silicates at the upstream monitoring station is considerable. However, in the case of sodium and phosphates, the contributions after the rainfall with respect to time are more or less uniform. The effects of dilution are predominant for bicarbonates in the river reach under study. Calcium indicated good response to rainfall events at the upstream station. The concentrations of chlorides, sulphates and nitrates indicated similar trends with high concentrations during the dry period and low concentrations during the wet season. However, the effects of first flush for chlorides, sulphates and silicates are significant. Phosphates demonstrated no significant trends except for very low concentrations during the rainy season due to dilution.