Litter Pollutograph and Loadograph

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Abstract

Litter pollutographs and loadographs were prepared. The first flush phenomenon was evaluated and the impacts of various parameters such as rain intensity, drainage area, peak flow rate, and antecedent dry period on litter volume and loading rates were evaluated. Results obtained indicate that (i) first flush effect of gross pollutant concentrations was generally observed, (ii) the size of the drainage area did not increase the total litter mass loading, (iii) litter volume and loading rates appear to be directly related to storm intensity, (iv) weak or no correlation between litter volume and antecedent dry period was found, and (v) the ratio of biodegradable litter to non-biodegradable litter was roughly one to one across the entire event. However, a greater percentage of biodegradable litter was normally collected in the first flush.

Introduction

Litter is gradually being considered one of the major pollutants of concern in protecting the integrity of California’s receiving waters for beneficial use. The California Water Resources Control Board has identified in their 303(d) list at least 36 water bodies where trash is considered a pollutant of concern (CSWRCB, 1999). One of the water bodies is the Los Angeles River at the Sepulveda Flood Basin. On June 18, 2001 the California Regional Water Quality Control Board, Los Angeles (LA) Region, developed a total maximum daily load (TMDL) standard for trash in the LA River (CRWCB, 2001).

Faced with expected future trash regulation, the California Department of Transportation (Caltrans) is actively assessing the characteristics and potential impacts of litter generated from their surface transportation right-of-way (Caltrans, 2000a). Caltrans is also evaluating the practical application and performance of several litter capturing devices in their right-of-way (Caltrans, 2001).