

SCCWRP #0649

Levels and patterns of fecal indicator bacteria in stormwater runoff from homogenous land use sites and urban watersheds

Liesl Tiefenthaler, Eric D. Stein and Kenneth C. Schiff

ABSTRACT

Routine stormwater monitoring programs focus on quantification of average fecal indicator bacteria (FIB) concentration at the terminal watershed discharge point. While important for permit compliance, such monitoring provides little insight into relative bacteria levels from different land use types or the mechanisms that influence FIB concentrations. The goal of this study was to quantify the relative levels and flux patterns of *Escherichia coli*, enterococci, and total coliforms from representative land use (LU) types. Bacteria concentrations were measured over the entire storm duration from 8 different LU types over 13 storm events in 5 southern California watersheds during the 2000–2005 storm seasons. In addition, runoff samples were collected from 8 bottom of the watershed mass emission (ME) sites. Intra-storm and intra-season patterns were investigated in order to identify mechanisms that influence patterns of FIB concentrations. Mean FIB event mean concentrations (EMCs) at LU sites ranged from 10^3 to 10^5 MPN/100 ml. Recreational (horse stables) LU sites contributed significantly higher storm EMCs than other LU types. Early season storms repeatedly produced higher EMCs than comparably sized late season storms. For most storms sampled, the highest bacterial concentrations occurred during the early phases of stormwater runoff with peak concentrations usually preceding peak flow.

Due to distribution restrictions, the full-text version of this article is available by request only.

Please contact pubrequest@sccwrp.org to request a copy.