

Contribution of natural catchments to levels of metals, nutrients, and solids in stormwater

Vada K. Yoon and Eric D. Stein

ABSTRACT

One of the key challenges in managing water quality and meeting regulatory standards is accounting for the natural contribution of a range of water quality constituents. Such information provides context for anthropogenic constituent concentrations and helps inform managers about appropriate regulatory targets. This study quantified levels of suspended solids (TSS), metals, and nutrients in stormwater runoff from 18 sites across 11 watersheds representing a range of natural (undeveloped) conditions in southern California. Constituent concentration and flux were measured over the course of a variety of storms in order to investigate temporal and spatial patterns in constituent levels, and to identify the most important environmental attributes affecting background water quality. Concentrations of most constituents from the natural catchments were one to two orders of magnitude lower than those observed in previous water quality studies of developed catchments in southern California. In contrast, TSS levels were comparable to those found in urban stormwater. Geologic setting had the greatest effect on constituent levels. Unlike urban systems, natural catchments do not appear to exhibit a first flush phenomenon, with a substantial portion of the constituent load occurring later in the storm.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2007AnnualReport/AR07_045_060.pdf