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# **Dry weather water quality loadings in arid, urban watersheds of the Los Angeles Basin, California, USA**

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### **ABSTRACT**

Dry-weather runoff in arid, urban watersheds may consist entirely of treated wastewater effluent and/or urban non-point source runoff, which can be a source of bacteria, nutrients, and metals to receiving waters. Most studies of urban runoff focus on stormwater, and few have evaluated the relative contribution and sources of dry weather pollutant loading for a range of constituents across multiple watersheds. This study assessed dry weather loading of nutrients, metals, and bacteria in six urban watersheds in the Los Angeles region of southern California to estimate relative sources of each constituent class and the proportion of total annual load that can be attributed to dry weather discharge. In each watershed, flow and water quality were sampled from storm drain and treated wastewater inputs, as well as from in-stream locations during at least two time periods. Data was used to calculate mean concentrations and loads for various sources. Dry weather loads were compared to modeled wet weather loads under a range of annual rainfall volumes to estimate the relative contribution of dry weather load. Mean storm drain flows were comparable between all watersheds, and in all cases approximately 20% of the flowing storm drains accounted for 80% of the daily volume. Wastewater reclamation plants (WRP) were the main source of nutrients, storm drains accounted for almost all the bacteria, and metals sources varied by constituent. In-stream concentrations reflected major sources, for example nutrient concentrations were highest downstream of WRP discharges, while in-stream metals concentrations were highest downstream of the storm drains with high metals loads. Comparison of wet vs. dry weather loading indicates that dry weather loading can be a significant source of metals, ranging from less than 20% during wet years to greater than 50% during dry years.

### **Full Text**

[ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005\\_06AnnualReport/AR0506\\_017-32.pdf](ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005_06AnnualReport/AR0506_017-32.pdf)