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# Assessment of best management practice (BMP) effectiveness for reducing toxicity in urban runoff

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### ABSTRACT

To assess the effectiveness of Best Management Practices (BMPs) in southern California for improving water quality impacts related to toxicity, five BMP technologies were evaluated with respect to their ability to reduce contaminant concentrations and toxicity in runoff samples. The BMP technologies included an enhanced stream wetland, constructed sub-surface flow wetland cells, a screening/settlement sump, hydrodynamic devices using Continuous Deflection Separation (CDS) units, and a combination of screening, microfiltration, and UV treatment. BMPs based on wetland systems were able to reduce many of the total and dissolved metals, as well as diazinon, in the runoff samples. Dissolved metals that were not reduced were either too low to expect large reductions, or were below chronic water quality criteria in the inflow. Toxicity for wetlands was rare, and was reduced after treatment. Most of the CDS unit devices were ineffective or inconsistent at reducing metal concentrations or toxicity, and had mixed results with total suspended solids (TSS). In general, the CDS units also had no effect on toxicity. This is not surprising, as the CDS units were designed to remove solids from runoff, yet the fraction usually associated with toxicity is the dissolved phase. The screening/settlement sump was inconsistent in reducing most metals and TSS. Although sample toxicity was often reduced after screening/settlement sump treatment, outflow samples remained highly toxic. The SMURRF site used a combination of treatment processes that consistently reduced concentrations of most total metals and TSS, however few metals were high enough to assess attainment of the chronic criteria. Toxicity for this site was not consistent enough to evaluate reduction.

### Full Text

[ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005\\_06AnnualReport/AR0506\\_207-226.pdf](ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2005_06AnnualReport/AR0506_207-226.pdf)