

## Retrospective evaluation of shoreline water quality along Santa Monica Bay beaches

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### ABSTRACT

Santa Monica Bay (SMB) beaches are the most heavily used in the U.S.A., despite an increased number of water quality postings over the last several years. To assess whether water quality problems are concentrated at a small number of chronically affected sites or whether the problems are widely distributed, we compiled 5 years of monitoring data collected at 59 sites, 22 of which are sampled daily. Other locally available rainfall and sewage spill monitoring information data were added to this data set to assess whether sewage spills, dry weather runoff, or wet-weather runoff contribute the most to exceedences of water quality thresholds. Approximately 13% of the shoreline mile-days along monitored beaches in SMB exceeded the State of California's beach water quality standards during the 5-year study period. Most of the water quality exceedences occurred near urban runoff drains even though areas affected by drains represent only a small portion of the total shoreline. Although storms are relatively infrequent in southern California, the extent of water quality exceedences resulting from storm water runoff was similar to the extent of water quality exceedences found during dry weather. Sewage spills, while potentially more serious because they lead to beach closures rather than to the more limited posting of warning signs, represented less than 0.1% of the shoreline mile-days that exceeded water quality thresholds. During dry weather conditions, most of the water quality problems occurred near five of the largest drains and at two beach areas that have unique physical characteristics, which limited mixing, dispersion, and dilution. During wet weather conditions, water quality problems were more widespread.

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