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Microbiological water quality at non-human influenced reference beaches in southern California during wet weather

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ABSTRACT

Although urban wet weather discharges may have elevated concentrations of fecal indicator bacteria impacting water quality at swimming beaches, not all of these bacteria may arise from human sources. In this study, the contribution of non-human fecal indicator bacteria was quantified by sampling coastal reference beaches in southern California. Samples were collected at beaches near stormwater discharges from undeveloped watersheds and analyzed for total coliform, *Escherichia coli*, and enterococci. Surfzone samples exceeded water quality thresholds >10 times more frequently during wet weather than dry weather. Exceedences were greatest <24 h following rainfall, then steadily declined on successive days. Early season storms exceeded thresholds more frequently, and by greater magnitude, compared to late season storms. Large storms exceeded thresholds more frequently than smaller-sized storms, partly due to the breaching of sand berms. When discharges did reach the surf zone, bacterial concentrations in the wave wash were correlated with watershed bacterial flux.

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