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Relationship between rainfall and beach bacterial concentrations on Santa Monica Bay beaches

Drew Ackerman and Stephen B. Weisberg

ABSTRACT

Rainfall effects on beach water quality in southern California are large enough that county health departments typically issue warnings for the public to avoid recreational water contact for three days following a storm. To enhance the scientific foundation for these preemptive public health warnings, we examined the relationship between rainfall and beach indicator bacteria concentrations using five years of fecal coliform data taken daily at 20 sites in southern California. There was a countywide increase in ocean bacterial concentrations associated with almost all storms larger than 6 mm and with every storm larger than 25 mm. Only for storms less than 2.5 mm was there no observable rainfall effect. Bacterial concentrations remained elevated for five days following a storm, although they generally returned to levels below state water quality standards within three days. The length of the antecedent dry period had a minimal effect on this relationship, probably reflecting a quickly developing equilibrium between the decay of older fecal material and the introduction of new fecal material to the landscape.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2001_02AnnualReport/18_ar37-drew.pdf