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Effect of temporal sampling frequency on shoreline microbiology assessments

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ABSTRACT

More than 80,000 shoreline bacteriological samples are collected annually in southern California to protect beachgoer health, but sampling frequency varies from daily to monthly among sampling sites. To assess the effectiveness of various sampling frequencies, we used the last five years of data from 24 Los Angeles area sites that are monitored daily to simulate five alternative sampling strategies: five weekdays, five days per week including a weekend day, three days per week, weekly, and monthly. In each of these sampling strategies, we included in the simulation the local custom of adaptive sampling, in which a site is resampled the following day if bacterial concentrations exceed the State of California's beach water quality standards. We found that sampling five times per week resulted in observing about 80% of the events in which State standards were exceeded. This frequency dropped to 55, 25, and 5% for three times per week, weekly, and monthly sampling, respectively. Adaptive sampling was not completely effective because nearly 70% of the water quality exceedences were single-day events, even at the most frequently contaminated sites.

Full Text

ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/1999AnnualReport/26_ar37.pdf