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Regional Assessment of Human Fecal Contamination in Southern California Coastal Drainages

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ABSTRACT

Host-associated genetic markers that allow for fecal source identification have been used extensively as a diagnostic tool to determine fecal sources within watersheds, but have not been used in routine monitoring to prioritize remediation actions among watersheds. Here, we present a regional assessment of human marker prevalence among drainages that discharge to the U.S. southern California coast. Approximately 50 samples were analyzed for the HF183 human marker from each of 22 southern California coastal drainages under summer dry weather conditions, and another 50 samples were targeted from each of 23 drainages during wet weather. The HF183 marker was ubiquitous, detected in all but two sites in dry weather and at all sites during wet weather. However, there was considerable difference in the extent of human fecal contamination among sites. Similar site ranking was produced regardless of whether the assessment was based on frequency of HF183 detection or site average HF183 concentration. However, site ranking differed greatly between dry and wet weather. Site ranking also differed greatly when based on enterococci, which do not distinguish between pollution sources, vs. HF183, which distinguishes higher risk human fecal sources from other sources, indicating the additional value of the human-associated marker as a routine monitoring tool.

Full Text

http://ftp.sccwrp.org/pub/download/DOCUMENTS/JournalArticles/999_RegionalAssessmentOfFecalContamination.pdf