

The challenges of microbial source tracking at urban beaches for Quantitative Microbial Risk Assessment (QMRA)

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Urban beaches are frequently impacted from multiple sources of fecal contamination. This along with high beach usage underscores the importance of appropriate management that protects swimmer health. The USEPA has enabled the use of QMRA as a tool for quantifying swimmer health risk and setting site-specific water quality objectives. This study illustrates the challenges associated with human and non-human source identification and how these challenges influence the decision of whether QMRA at typical urban beaches for water quality management is appropriate. In this study, a similar and correlated spatial relationship with elevated *Enterococcus* and avian-specific markers was observed, suggesting shorebirds as a primary source of FIB. However, human-associated markers were also detected frequently but at low concentrations. Ultimately, a QMRA was not conducted because pathogen loading from potential human sources could not be confidently quantified, having consequences for health risk in receiving waters where recreational contact occurs.

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