

MICROBIAL SOURCE TRACKING OF HUMAN AND ANIMAL FECAL CONTAMINATION IN THE BEACHES AND RIVERS OF TRINIDAD

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Increasing levels of fecal pollution pose a potential economic constraint and hardship for Caribbean islands as their economy primarily depends on a thriving coastal tourism industry. The aim of this study was to identify the main sources of fecal pollution in Trinidad at popular beaches and rivers. A total of 58 water samples were collected from 35 sampling sites, including 23 marine and 12 freshwater locations. Colilert-18™ was used to enumerate the *Escherichia coli* concentration at the sampling sites. Of the 58 samples collected, 19 sites exceeded EPA standard for safe recreational use. The sites with the highest levels of fecal contamination were on the west coast of the island and included Brickfield River (4839 MPN 100 ml⁻¹), Orange valley Bay (2406.6 MPN 100 ml⁻¹) and Chaguaramas Bay (1921.2 MPN 100 ml⁻¹). Fortunately, most of the popular beaches including Maracas, Tyrico, Las Cuevas, Macqueripe, Toco, had relatively low or safe levels of *E. coli*. DNA was extracted from each sample and qPCR was used for microbial source tracking (MST) of human, avian and ruminant fecal bacteria. MST detected human (HF183) fecal pollution at (~63%) sites, birds (CP1F/R) at (~67%) sites, chicken (CP29F/R) at (~36%) sites, ruminant (Rum-2-bac) at (~48%) sites and cattle (BacCow) at (~34%) sites particularly along the central and west coast of the island. In addition, ~21% of the sampling areas were impacted by human, avian and ruminants. The high incident of fecal pollution of the island water systems is particularly alarming and represent a serious public health risk.

PRESENTER BIO: Ronell S.H. Bridgemohan is a current PhD candidate of the Soil and Water Sciences Department in the University of Florida. He is a scientist/water ecologist and environmental microbiologist He has done research in the Caribbean for 11 years. He has 16 publications and 3 ongoing projects in water quality science and research. He worked on projects locally, regionally and internationally in various fields of water quality, biosciences, agriculture, food production