

# MICROBIAL RISK ASSESSMENT VIA QPCR TO DETERMINE THE LEVEL AND SOURCES OF FECAL CONTAMINATION AND HELICOBACTER PYLORI IN NORTHWEST FLORIDA URBAN STREAMS

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Fecal contamination of watersheds and urban streams is of increasing concern and has been a critical issue, especially in Northwest Florida. The potential risk to human health posed by waterborne pathogens is one of the greatest threats to the stability and resilience of coastal communities along the Gulf of Mexico. Northwest Florida has a thriving coastal tourism community that also serves many other purposes, such as recreational, commercial, shellfish harvesting, and fisheries. Increasing levels of fecal pollution pose a potential economic constraint and hardship for NW Florida as its economy primarily depends on thriving coastal tourism industry. Poor recreational water quality and high incidences of fecal pollution can be attributed to its inadequate and outdated sewage and drainage systems and poor livestock waste disposal. The constant flooding and runoff issues lead to high levels of fecal pollution, and possibly pathogenic bacteria from human and animal sources, which endangers the residents. Understanding the dynamics of contaminants in streams represents an important first step for identifying their sources and methods to mitigate their delivery from the landscape. The aim of this study was to determine, the level of fecal indicator bacteria concentration (*E. coli*), the point and non-point sources of fecal contamination, and whether they were of human or animal origin. IDEXX Colilert-18 was used to enumerate *Escherichia coli* in the samples and 3 sites exceeded the USEPA limit, 10-mile (461.1 MPN CFU/ 100 ml) Mills site (410.6 MPN CFU/ 100 ml) and Villa Venyce (613.1 MPN CFU/100 ml). DNA was extracted from each sample and qPCR was used for microbiological source tracking (MST) to detect host specific Bacteroides DNA. Microbial Source tracking detected human (HF183) fecal pollution at (44.45%) sites, dogs (Bac Can) (33.33%), and birds (CP1F/R) at (11.11%). This study illustrates that our sites are contaminated with human and animal sources of fecal inputs. Many sites with elevated levels of fecal pollution detected poses a serious health risk.

**PRESENTER BIO:** Ronell Bridgemohan is a hydrologist, molecular microbial ecologists, microbiologist, and environmental scientist with 11 years' experience in microbial risk assessments and water quality monitoring. He has worked for government agencies, on federal funded projects and internationally on water quality issues. He has studied and worked in USA and the Caribbean.