Fecal contamination and its public health risk is a big concern for beach water quality especially in regions where beach recreational activities and tourisms play an important role in public’s daily life and local economy. Fecal contamination currently is monitored by measuring fecal indicator bacteria such as *Enterococcus* spp. and *E. coli*. These fecal indicator bacteria can originate from many sources including human, non-human including gull, cow, dog, and even non-fecal sources such as natural vegetation and sand. However, different sources differ greatly in its potential public health risk as human fecal sources are more likely to contain human pathogens. Therefore it is necessary to identify sources of contamination for improved public health risk assessment and for more effective contamination remediation. This talk discusses a study to identify sources of fecal contamination and how engineered structures play an important role in beach water quality.