California Creek and Drayton Harbor Microbial Source Tracking Pilot Study

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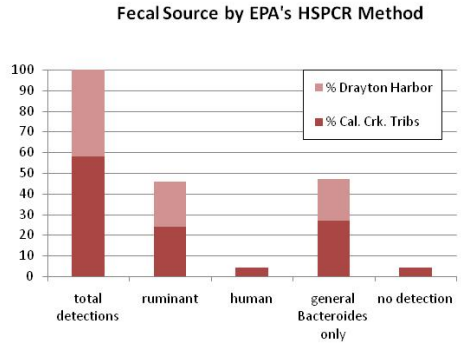
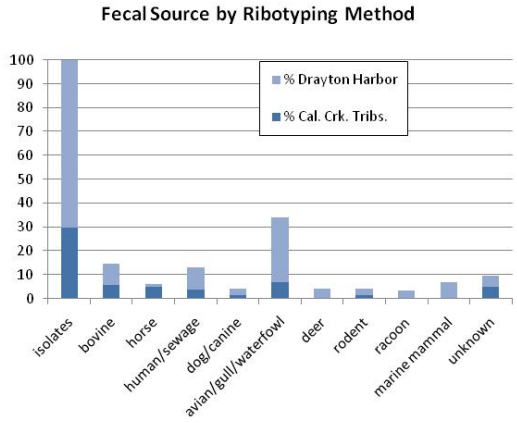
Abstract

In 2006, the Puget Sound Restoration Fund's Drayton Harbor Community Oyster Farm convened multiple partners to undertake a pilot microbial source tracking study. The project sampled Drayton Harbor and California Creek tributaries for analysis by *Bacteroides* host specific polymerase chain reaction (HSPCR) and ribotyping over a six month wet season. The study found widespread occurrence of human biomarkers at the four Drayton Harbor marine shellfish growing area stations tested with repeated occurrence at three sites. Cow/ruminant biomarkers were widespread at six of ten marine sites with multiple occurrences at five locations and horse biomarkers were found at two of four marine stations tested. Avian fecal sources were the most frequently detected biomarker in marine waters. Livestock and human fecal sources were identified in freshwater samples. Cow/ruminant biomarkers were found at all 8 sites tested with multiple occurrences at four. Human sources were found at 2 of 6 sites tested with multiple occurrences, and horse biomarkers were found at both sites tested with multiple occurrences. In a split-sample comparison the EPA HSPCR technique returned host specific identifications for humans and ruminants in 51% of samples tested where the IEH method returned only 14%. A cooperative effort convened among laboratories possessing primers is needed to standardize the method, make primers readily available, and make the method more accessible and useful for managers. Study results are being used by local agencies to target priority sub-drainages for corrective actions, however additional resources are needed to coordinate and follow through with measures to eliminate ruminant and human fecal sources threatening shellfish harvest. Strengthening of current legislation may be needed to facilitate remediation of fecal pollution sources.





Acknowledgements

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