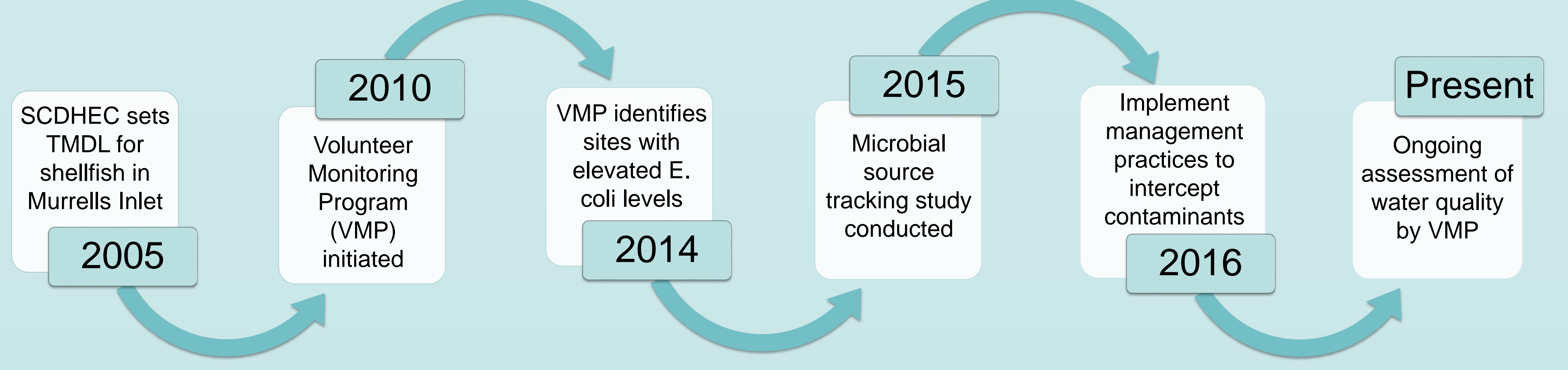


Background

Elevated levels of *E. coli* were identified by the Murrells Inlet Volunteer Monitoring Program. On land sources of *E. coli* were identified and investigated with a microbial source tracking study to determine whether the contamination was human-sourced.



Methods

Five sample sites were selected including three identified by the volunteer monitoring as having elevated levels of fecal bacteria concentrations as well as two upstream sites. Water and sediment samples were collected during three dry and three wet events during the summer and fall of 2015 when fecal bacteria concentrations were expected to be highest. Samples were then analyzed for tracers including human-sourced *Bacteroides* (*BacHum*), *Bacteroides* (*GenBac*), *E. coli* and total coliforms, fecal coliforms, caffeine, turbidity, and salinity.



Figure 1: Map of Murrells Inlet with sampling sites with maps and photographs of each of the catchments. Phase I sites are in yellow. Potential Phase II sites are in green. Red lines are subwatershed boundaries. Blue lines are stormwater infrastructure.

Results and Conclusions

The study revealed higher fecal bacteria concentrations and higher turbidity levels during rain events than during dry events. There is minimal evidence to attribute the elevated bacteria concentrations to human sources. Because significant contributions of fecal bacteria were found at all sites, further source tracking upstream should be performed to identify the source of contamination. Additional genotypic assays should be performed to determine the source of fecal bacteria such as for dogs, birds, and other wildlife, including raccoons.

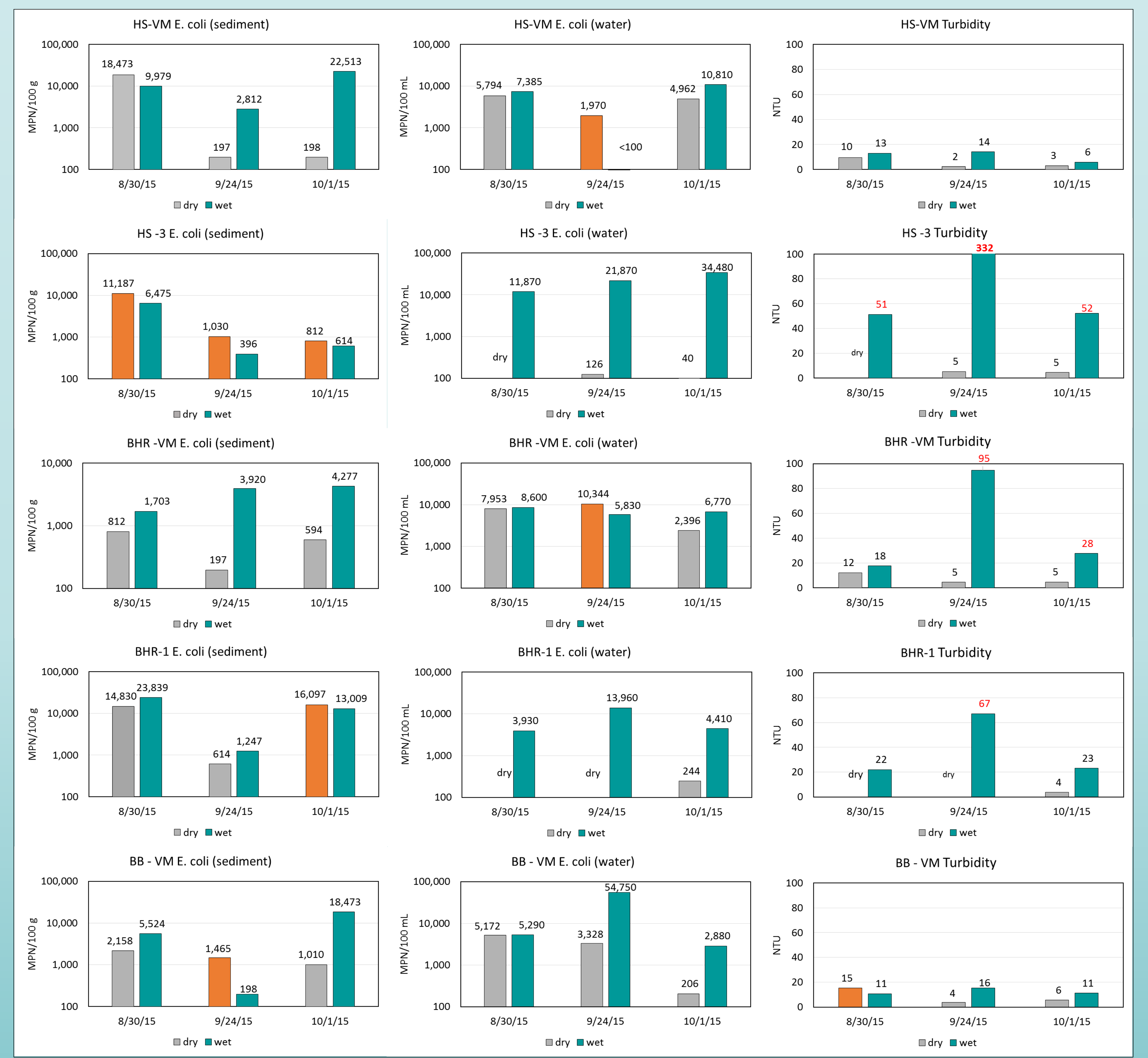


Figure 2: Results for *E. coli* concentrations for sediment and water samples and turbidity levels for water samples. Uncertainty estimates of 46% for *E. coli* in water and 2.8% for turbidity are based on average relative percent difference between field duplicates. Orange bars represent the infrequent cases where dry weather concentrations were greater than the wet weather concentrations. Red values exceed class SFH criteria.

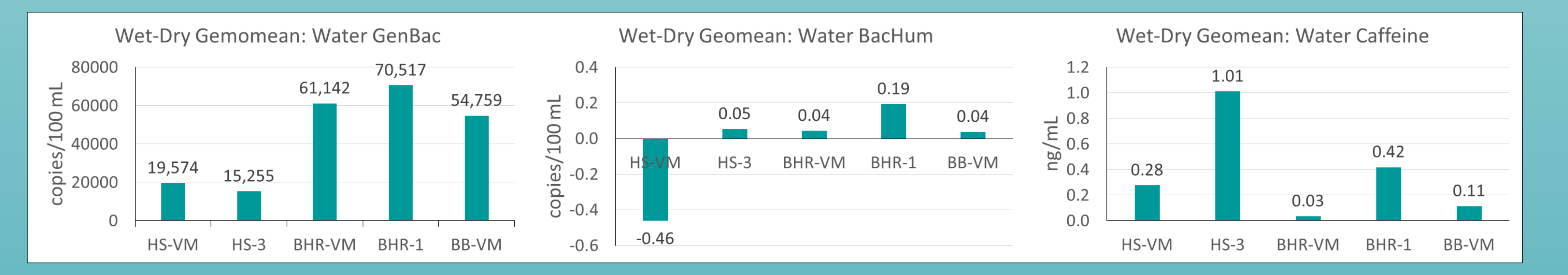


Figure 3: Analysis results for tracers of human-sourced bacteriodes (*GenBac*), bacteriodes (*BacHum*), and caffeine.

Acknowledgements

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