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.

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.

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.

Results and Conclusions

The study revealed higher fecal bacteria concentrations and higher turbidity levels during rainy 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.

Acknowledgements

This project is funded by Georgetown County and could not have been completed without the Murrells Inlet Volunteer Monitoring Program.