

ANNE ARUNDEL COUNTY
BACTERIA TMDL IMPLEMENTATION

BACTERIA MONITORING - WATERSHED AND SITE SELECTION

Anne Arundel County currently has 19 individual bacteria TMDL watersheds. Fifteen (15) of those watersheds are listed with fecal coliform as the impairment indicator based on USE II water quality standards. The TMDLs for these 15 watersheds were established using data from MDE monitoring stations in shellfish harvesting areas. The remaining four (4) TMDL waterbodies are designated as recreational USE I, with *E. coli* listed as the impairment indicator for two watersheds and enterococci listed as the impairment indicator for two watersheds.

In July 2019, Anne Arundel County began monthly bacteria monitoring in two of the 19 Bacteria TMDL watersheds at locations within the Marley Creek TMDL watershed and Furnace Creek TMDL watershed. The decision to monitor bacteria in these two watersheds was based on several factors. MDE guidance suggesting that jurisdictions establish monitoring stations in *non-shellfish waters* eliminated 15 of the County's Bacteria TMDL watersheds from consideration. In the County's desire to monitor in multiple TMDL watersheds, selecting watersheds with the same impairment indicator was a primary factor. The County also desired to monitor in TMDL watersheds that were not shared with other jurisdictions, if possible. Marley and Furnace Creek watersheds both met these criteria in that enterococci is the impairment indicator in both watersheds, and that both watersheds are located entirely within Anne Arundel County.

Anne Arundel County identified multiple locations within each TMDL watershed to monitor. The number of sites to be monitored was largely determined based on 1) cost 2) ability of field crew to collect samples and transfer samples to lab within the same work day to meet holding time criteria, and 3) ability to potentially identify distinct geographic locations contributing to bacteria loads ("hotspots"). It was determined that 6 monitoring sites in each watershed would meet the County's desires without being cost prohibitive. Site selection within each watershed was, again, a product of multiple factors. In each watershed, it was decided that the most downstream monitoring site would be the MDE monitoring site used to establish the TMDL. A simple desktop analysis of each watershed was used to determine the remaining five (5) sites in each watershed. Sites were chosen in a manner which segmented the watershed to allow for potential identification of source hotspots and/or potential identification of land use differences in bacteria contribution. In the case of Furnace Creek TMDL watershed, intimate knowledge of the watershed due to other ongoing field investigations undertaken by the County was a significant factor in site selection – some monitoring sites were located downstream of suspected bacteria hotspots (such as large established transient encampments). After desktop site selection, sites were visited by field teams to ensure they were accessible by foot, wadeable, safe to sample, and met surface water bacteria sampling criteria.

SEPTIC STRATEGIES

Anne Arundel County DPW statement on septic strategies in regards to bacteria reduction:

"DPW is developing a new septic to sewer connection program that seeks to reduce the overall number of septic systems that discharge to waterways. While the program is designed to optimize nitrogen removal,

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projects in the Critical Area and in known Onsite Wastewater Management Problem Areas will be prioritized. Septic connections in these locations are expected to provide co-benefits with respect to Bacteria TMDL impairments, and will provide support to other efforts more directly focused on bacteria impairments."