



DEPARTMENT OF PLANNING & ZONING
INTEROFFICE MEMORANDUM

TO: Board of County Commissioners
VIA: Julian M. Willis, County Administrator
VIA: Mary Beth Cook, Director of Planning & Zoning
VIA: Carolyn V. Sunderland, AICP, Deputy Director, Planning
VIA: Paul J. Conover, Planning Commission Administrator
FROM: DeCarlo Brown, Planner III
DATE: November 15, 2021
SUBJECT: Calvert County Non-Tidal Nutrient and Sediment Monitoring Program Review

Background:

A review of the Water Quality Monitoring Program for Nontidal Creeks in Calvert County, Maryland was conducted by the University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory (CBL) to assess the non-tidal monitoring program, analyze data collected since 2010, and recommend changes to and document the monitoring program plan.

Discussion:

The non-tidal stations water quality has varied from year to year over the record of monitoring. For most of the stations, the conditions vary depending on which nutrient or total suspended solids is being examined, with few stations being similar across all parameters. With a limited time-series, we have only had baseline conditions to examine, but the addition of two to three more years of sampling will allow for a more detailed trends analysis.

Currently, no ties are found between tidal and non-tidal stations, but more exploration with modeling or a different sampling approach may capture the relationship better. CBL recommends that future watershed or stream sampling be closely coordinated with tidal water sampling to make sure we are monitoring each of these at the timescale that allows the stream effects to be realized in the estuary. This linkage between tidal and non-tidal sampling would be enhanced with more frequent sampling.

In terms of future work, CBL recommends continuing sampling on a minimum of a quarterly basis and removing the infrequently-sampled stations not included in this larger analysis, leaving 27 main stations. CBL has included a Quality Assurance Project Plan for the continued sampling, currently based on the 27 stations. CBL suggests standardizing sampling to baseflow conditions on a quarterly basis. One of the challenges of the dataset was changing station names and adjusted sampling locations. If the program is initiated again, CBL strongly encourages an approach that documents GPS locations of stream sampling using Real-Time Kinematic GPS methods, and to establish a marker and written description with photographs for all sampling sites.

Fiscal Impact:

The cost of the review in 2020 was \$5,600.

Conclusion/Recommendation:

It is recommended that the BOCC direct staff to take the actions listed in the discussion above and in the report.