



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Mr. Richard Eskin, Ph.D., Director
Science Services Administration
Maryland Department of the Environment
1800 Washington Blvd., Suite 540
Baltimore, Maryland 21230-1718

MAY 18 2012

Dear Dr. Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, has reviewed the report *Water Quality Analysis of Phosphorus in Potomac River Lower North Branch, Allegany County, Maryland*, which was submitted by the Maryland Department of the Environment (MDE) for final Agency review on September 29, 2011. The Potomac River Lower North Branch (LNB) watershed (MD-02141001) was identified on Maryland's 2010 Section 303(d) list as impaired by sediment (1996); nutrients--phosphorus (1996); methylmercury (2002); metals--cadmium (1996); low pH (1996), and impacts to biological communities (2002). This water quality analysis (WQA) addresses only the nutrients (phosphorus) impairment in the watershed. A WQA for sediment was submitted to EPA concurrently with the submittal of the nutrient WQA. A WQA for cadmium to address the metals listing was approved by EPA in 2006, and a WQA for low pH was approved by EPA in 2005. The watershed was delisted for methylmercury in the 2010 Integrated Report.

MDE conducted a Biological Stressor Identification (BSID) analysis to evaluate the Section 303(d) nutrients listing in the 1st through 4th order streams of the Potomac River LNB watershed. The results of the BSID analysis showed no significant association between current nutrient levels and the degraded biological condition of the watershed. Additionally, the BSID analysis did not implicate low dissolved oxygen as a potential stressor to the watershed as observed dissolved oxygen data from the smaller order streams had concentrations above the State's water quality criterion of 5 mg/l. The BSID report mentions two possible reasons for why no stressors or sources were identified in the watershed. First, the stressors or sources could be highly localized and site-specific. Second, the Potomac River LNB watershed is located east of the Appalachian Plateau where the rainshadow effect causes the watershed to be more drought sensitive than surrounding highland watersheds.

In the mainstem Potomac River LNB watershed, MDE compared the median, 75th percentile, and 90th percentile of nutrient concentrations (TN, TP, NO₃, and PO₄) to CORE/TREND stations throughout the Piedmont and Highland Ecoregions of Maryland. An additional assessment was utilized in the mainstem Potomac River LNB watershed since the BSID analysis is only applicable to 1st through 4th order streams. The results of the comparison



showed that nutrient concentrations were lower (on average, by 33 percent) than those found at CORE/TREND stations with "good" or better water quality. Ninety-two percent of the samples observed in the watershed had a TN:TP ratio greater than ten, and none less than five. Therefore, it was concluded that nutrients in general and phosphorus in particular are not impairing the aquatic life of the mainstem Potomac River LNB watershed. In addition, an analysis of dissolved oxygen data from the mainstem showed that the dissolved oxygen criterion was being attained.

The analyses presented by MDE show that a TMDL for phosphorus is not necessary in the Potomac River LNB watershed since it was not shown to be impacting the aquatic life of the watershed. Barring the receipt of contradictory data, the *Water Quality Analysis of Phosphorus in Potomac River Lower North Branch, Allegany County, Maryland*, will be used to support a revision of the Integrated Report phosphorus listing in the Potomac River LNB watershed from Category 5 (waterbody is impaired, does not attain the water quality standard, and a TMDL is required); to Category 2 (waterbody is meeting some water quality standards, but with insufficient data to assess all impairments) when MDE proposes the revision of the Integrated Report.

Thank you for the opportunity to review the Water Quality Analysis. If you should have any questions, please contact Mrs. Helene Drago, TMDL Program Manager, at 215-814-5796.

Sincerely,

A handwritten signature in black ink, appearing to read "Jon M. Capacasa", written over a circular stamp or mark.

Jon M. Capacasa, Director
Water Protection Division

cc: Melissa Chatham, MDE-SSA