



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

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

DEC 7 2010

Dear Dr. Eskin:

The U.S. Environmental Protection Agency (EPA), Region III, has reviewed the report *Water Quality Analysis of Sediment in the Middle Patuxent River, Howard County, Maryland*, which was submitted by the Maryland Department of the Environment (MDE) for final Agency review on September 10, 2010. The Middle Patuxent River watershed (MD-02131106) was first identified on Maryland's 1996 Section 303(d) list as impaired by metals (zinc), sediment, and nutrients (nitrogen and phosphorus). This water quality analysis (WQA) addresses only the sediment impairments. A WQA for eutrophication to address the nutrients listing was approved by the EPA in 2007, and a WQA for zinc was approved by the EPA in 2009.

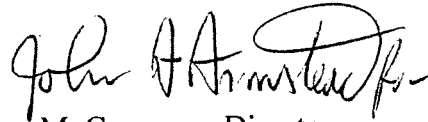
The WQA, submitted by MDE, evaluates whether or not the sediment loads of the Middle Patuxent River watershed are at a level to support aquatic life. In order to quantify the impact of sediment on the aquatic life of the Middle Patuxent River, a reference watershed approach was used which resulted in the establishment of a sediment loading threshold. A sediment loading threshold represents the sediment loading capacity that can occur, in addition to natural sediment delivery, without causing adverse impacts to aquatic life. The sediment loading threshold for the Middle Patuxent River watershed was determined to be approximately 3.3 times the sediment load of an all-forested watershed. This threshold value was based on a detailed analysis of sediment loads from watersheds that were identified as supporting aquatic life based on Maryland's biocriteria.

The computational framework chosen for the analysis of the Middle Patuxent River watershed's sediment loads was the Chesapeake Bay Program Phase 5.2 (CBP P.5) watershed model. The CBP P.5 produced an average annual sediment load for the watershed which was then assessed for sediment impairments based on the sediment loading threshold of the reference watershed approach. Through the use of CBP P.5, the average annual sediment load for the Middle Patuxent River was calculated to be approximately 11,899.1 tons/yr or 2.9 times the all-forested watershed condition. When this value is compared to the watershed's sediment loading threshold (3.3 times the sediment load of an all-forested watershed), it is evident that watershed does not exceed its assimilative capacity. The WQA analysis, therefore, indicates that the watershed is currently receiving loads below the maximum allowable load it can sustain and still support aquatic life; thus, the current watershed sediment loads are supporting the Use I-P designation for aquatic life in the Middle Patuxent River watershed.

Since the designated use is being met in the Middle Patuxent River watershed, a TMDL will not be necessary to achieve water quality standards in this watershed. However, if future evidence suggests that sediment loads are contributing to water quality problems, MDE will need to readdress the sediment impairment.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jon M. Capacasa". The signature is fluid and cursive, with a large initial "J" and "C".

Jon M. Capacasa, Director
Water Protection Division

cc: Melissa Chatham, MDE-TARSA