

Chesapeake Bay Program Press Backgrounder

Pollution Loads and Trends and Water Quality in the Chesapeake Bay Watershed

Pollution Loads and Trends in Rivers:

The U.S. Geological Survey (USGS) monitors nutrient and suspended sediment pollution loads delivered from the large watersheds located upstream of nine river input monitoring (RIM) stations to the Chesapeake Bay. Together, these stations—which are located on the Appomattox, Choptank, James, Mattaponi, Pamunkey, Patuxent, Potomac, Rappahannock and Susquehanna rivers—reflect loads delivered to the Bay from 78 percent of its 64,000-square-mile watershed. According to data from the program, nutrient and sediment pollution loads measured in water year 2013 (which took place between Oct. 1, 2012, and Sept. 30, 2013) were below long-term averages. Major results include:

	Long-term Trend (1985-2013)	Short-term Trend (2003-2013)	Total Loads from RIM Sites (2013)
Nitrogen	Long-term trends in total nitrogen concentrations are improving at five of nine monitoring stations, including the Susquehanna, Potomac and James rivers. Conditions are declining at two sites.	Short-term trends in total nitrogen concentrations show three sites with improving conditions and one site with declining conditions.	Approximately 160 million pounds of nitrogen reached the Bay during the 2013 water year, which is below the long-term average of 212 million pounds.
Phosphorus	Long-term trends in total phosphorus concentrations are improving at three sites and declining at three sites.	Short-term trends in total phosphorus concentrations show two sites with declining conditions. Other sites experienced no significant change.	Approximately 10 million pounds of phosphorus reached the Bay during the 2013 water year, which is below the long-term average of 14.6 million pounds.
Sediment	Long-term trends in suspended sediment concentrations are improving at three sites and declining at one site.	Short-term trends in suspended sediment concentrations show four sites with declining conditions. Other sites experienced no significant change.	Approximately 2.71 million tons of sediment reached the Bay during the 2013 water year, which is below the long-term average of 5.2 million tons.

Below is a summary of the long-term and short-term flow-adjusted nitrogen, phosphorus and sediment concentration trends for the nine River Input Monitoring stations:

Monitoring Station	Total Nitrogen		Total Phosphorus		Suspended Sediment	
	Long Term	Short Term	Long Term	Short Term	Long Term	Short Term
SUSQUEHANNA RIVER AT CONOWINGO, MD	Decreasing	Decreasing	Not Sig.	Increasing	Not Sig.	Not Sig.
POTOMAC RIVER AT WASHINGTON, DC	Decreasing	Decreasing	Decreasing	Not Sig.	Decreasing	Not Sig.
JAMES RIVER AT CARTERSVILLE, VA	Decreasing	Not Sig.	Decreasing	Not Sig.	Not Sig.	Not Sig.
RAPPAHANNOCK RIVER NR. FREDERICKSBURG, VA	Decreasing	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
APPOMATTOX RIVER AT MATOACA, VA	Not Sig.	Not Sig.	Increasing	Not Sig.	Not Sig.	Increasing
PAMUNKEY RIVER NEAR HANOVER, VA	Increasing	Not Sig.	Increasing	Not Sig.	Increasing	Increasing
MATTAPONI RIVER NEAR BEULAHVILLE, VA	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.	Not Sig.
PATUXENT RIVER AT BOWIE, MD	Decreasing	Decreasing	Decreasing	Not Sig.	Decreasing	Increasing
CHOPTANK RIVER NEAR GREENSBORO, MD	Increasing	Increasing	Increasing	Increasing	Decreasing	Increasing

Increasing: degrading conditions
 Decreasing: improving conditions
 Not Sig.: No trend observed using 95 percent confidence

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Water Quality Standards Achievement in the Tidal Chesapeake Bay:

The Chesapeake Bay Program measures progress toward the achievement of water quality standards in the Chesapeake Bay and its tidal tributaries using three environmental factors: dissolved oxygen, water clarity or underwater grasses, and chlorophyll *a*. These data are assessed in three-year periods and combined into a single environmental indicator that tracks changes in Bay health over time. After more than a decade of steady improvement between 1989 and 2002, the attainment of water quality standards has seen mixed results. Changes seen in the past 10 years have shown no statistically significant patterns, fluctuating between 29 and 40 percent. [Results](#) of the 2011 to 2013 assessment period indicate that 29 percent of the water quality goals for the Bay were met during this period.

