United States Department of the Interior
U.S. Geological Survey
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Maryland-Delaware-District of Columbia
Water Science Center
Seminar Series

Thursday, June 12, 2014, 11:00 am - 12:00 pm

Assessing the contribution of legacy sediment and mill dam storage to sediment budgets in the Piedmont of Maryland.

By Mitchell Donovan

The disparity between watershed erosion rates and downstream sediment delivery has been an important theme in geomorphology for many decades, and the role of floodplains in sediment storage has frequently been cited. In the Piedmont province of the eastern US, upland deforestation and agricultural land use following European settlement led to deposition of thick packages of overbank sediment in valley bottoms, commonly referred to as "legacy" deposits.

Previous authors have cited geomorphic evidence that some of this legacy sediment has been remobilized by lateral migration of channels. Recent interest has focused on the role of historic mill dams as a cause of floodplain aggradation, and on mill-dam deposits as a potentially important source of sediment exported downstream.

This presentation will discuss answers to these questions:

1) How rapidly is sediment being remobilized from Baltimore County floodplains by channel migration and bank erosion?
2) What proportion of this sediment is derived from legacy deposits?
3) Is the presence of mill dams a necessary prerequisite for aggradation of legacy sediment?
4) How important are mill-dam deposits by comparison with other sediment sources contributing to downstream sediment yields?

Field evidence confirmed that legacy sediments existed at sites with and without mill dams. The results suggest mill dams should not be universally regarded as dominant sources of sediment from Piedmont tributaries to the Chesapeake Bay.

This presentation will also available remotely via Webex: https://usgs.webex.com/

For directions to the USGS MD-DE-DC WSC: http://md.water.usgs.gov/directions/baltimore.html.