

Are Your Sediment Data Reliable and Comparable?

G. Douglas Glysson P.E. P.H.

U.S. Geological Survey, 412 National Center, Reston, VA 20192

Biographical Sketch of Author

Mr. Glysson has over 34 years of service with the USGS as a hydrologic engineer, hydrologist, and supervisory hydrologist, working at all levels of the Water Resources Discipline and has served in supervisory and technical management positions. Mr. Glysson has a M.S. in Engineering Administration and a B.S. in Civil Engineering. He currently serves as the Vice Chair of ASTM International's Committee on Water and Secretary of the Board of Registration for American Institute of Hydrology. He has authored over 35 books, reports, papers, and standards on sediment data collection, analysis, and transport. He has taught the USGS' Sediment Field Data Collection Techniques and Sediment Records Computation and Interpretation Courses, a WMO International Workshop on Sediment Transport Measurements in Beijing, China, and numerous short courses. He has performed research into the differences between TSS and SSC analyses and co-authored USGS policy memorandum on the subject.

Abstract

Fluvial sediment is one of the most widespread pollutants affecting the nation's rivers and streams. In addition to traditional uses of sediment data, information is needed for contaminated sediment management, dam decommissioning and removal, environmental quality, stream restoration, geomorphic classification and assessments, physical-biotic interactions, and regulatory requirements of the Clean Water Act, including the EPA's Total Maximum Daily Load (TMDL) Program.

Sediment monitoring programs are being designed and implemented throughout the United States and the world and require millions of dollars to support. No matter how well these programs are designed and funded, they will not succeed in meeting their objectives if the fundamental methods and equipment used to collect and analyze the data are unreliable or lack standardization. Errors associated with using non-standardized methods can far exceed, for example, the magnitude of the load reduction desired by TMDL projects. Unfortunately many engineers and scientists do not realize that the collection and analysis methods they have been using for years may actually induce considerable error and uncertainty into their data and thus can have detrimental effects on the results and management decisions based on the data. This paper will present information and case studies concerning the errors associated with using some fairly common and widely used equipment and methods for the collection and analyses of sediment data.