

National Water-Quality Monitoring Programs of the U.S. Geological Survey

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Biographical Sketch of Author

Richard Coupe is a Supervisory Hydrologist with the U.S. Geological Survey in Pearl, Mississippi, and has worked for the Survey since 1980 in a variety of locations –Virginia, Illinois, and Mississippi. He is currently the Chief of the Mississippi Embayment Study Unit of the National Water Quality Assessment (NAWQA) Program and also serves as the Mississippi Basin coordinator of the National Stream Quality Accounting Network (NASQAN). Richard has an undergraduate degree in mathematics from George Mason University, a Masters degree from Mississippi State University, and is completing a PhD from Mississippi State University.

Abstract

During the 20th century, the U.S. Geological Survey began collecting data to evaluate the quality of water for the Nation's streams and rivers. The earliest effort was in 1906-07 when water was collected and analyzed from more than 150 streams and rivers across the Nation and were used to calculate the flux of sediment and dissolved solids into the Atlantic and Pacific oceans and the Gulf of Mexico. These data have proved valuable in recent years in determining changes in water quality throughout the 20th century. Beginning in 1973, the U.S. Geological Survey began operation of its National Stream Quality Accounting Network (NASQAN): for the next 20 years water-quality data were collected and analyzed from hundreds of streams and rivers as part of the NASQAN Program. The objectives of the program were to (1) measure the quantity and quality of stream water quality, (2) describe spatial variability in stream water quality, (3) evaluate trends in water quality, and (4) guide future water-quality assessments. The program was successful and generated needed data to assess trends, to calculate the flux of material from NASQAN basins, and to investigate relations between water quality and streamflow. The NASQAN program was redesigned in 1995 and now operates on the Nation's largest rivers (Colorado, Columbia, Mississippi, Rio Grande, and the Yukon) with redefined objectives to (1) characterize these large subbasins, (2) determine regional source areas, and (3) assess the effects of human influences on observed concentrations and fluxes.