

## Data Visualization

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**Abstract Title:** Storytelling with Your Data

Maps have been telling stories for centuries. In the past few decades, however, maps have been integrated with data analysis and supercharged with digital technologies, including geographic information systems, the Web, mobile communications, and the cloud. Thanks to these technologies, maps can be used and interacted with in a myriad of ways unlocking the meaning behind data. The presentation will provide share some best practices in how to cost effectively build story maps for your own organization.

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**Abstract Title:** Three Rivers QUEST Data Management & Visualization

The Three River QUEST (3RQ) is a water quality monitoring and reporting program of the West Virginia Water Research Institute (WVWRI) at West Virginia University. The QUEST program includes a regimented bi-weekly sampling effort by environmental scientists and a volunteer monitoring component that serves to inform state and federal agencies, industry and the public on water quality in the Upper Ohio Region. The 3RQ program was initiated in July 2009 after concerns arose over high concentrations of Total Dissolved Solids (TDS) in the Monongahela River that exceeded the U.S. Environmental Protection Agency's secondary drinking water standard. Since then, WVWRI staff has conducted sampling and monitoring at 17 locations throughout the Monongahela River Basin every two weeks. WVWRI received funding from the Colcom Foundation, in part, to develop a platform for the collection of data throughout the Upper Ohio River Basin. The 3 Rivers QUEST program, administered and managed by WVWRI, now includes regional research partners at Duquesne University (Southern Allegheny River Region), Wheeling Jesuit University (Upper Ohio River Region), and the Iron Furnace Chapter of Trout Unlimited (Northern Allegheny River Region). In each of these regions, volunteer organizations are also encouraged to participate in the program. Understanding that citizen-based groups are collecting similar information throughout the 3RQ area, WVWRI has been working to find the "commonality" of data being collected. With the West Virginia University Research Office of Information Technology (WVU ROIT), WVWRI has developed the QUEST Data Management Tool which provides a secure data entry portal for QUEST participants. The data is managed by a secure database and housed on WVU servers. Quality control measures are performed when volunteers enter data,

preventing mis-entry of data. Visualization of data is provided by an Arc-GIS based data map on the program's website, [www.3RiversQUEST.org](http://www.3RiversQUEST.org). This format provides public accessibility to data in a safe and secure manner. Coordinates for volunteer site locations are not shared. Reporting features such as graphs for site locations are provided through the Arc GIS platform.

**Organization:** USEPA, Office of Wetlands, Oceans and Watersheds

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**Abstract title:** New EPA Tools to Aid in Water Decision Making

This presentation will discuss new tools that are available to watershed managers and watershed groups to aid in decision making. First, the presentation will cover a high level view of water data availability through the EPA and USGS co-hosted Water Quality Portal. The presentation will then explain how water data is made available through the Portal using a common water data structure, EPA Water Quality Exchange. Next, the presentation will discuss geospatial analysis tools in the National Hydrography Data Set Plus. Finally, the presentation will discuss a tool which pulls multiple EPA water program data into one location enabling someone to view conditions at a specific point of interest called My Waterway Mobile App. Together, these tools help increase the value of data to address issues more holistically and aid in decision making.