

## A New Paradigm in Data Sharing: The EPA-USGS Water-Quality Data Exchange

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### ABSTRACT

EPA and USGS are working together to provide scientists and policy-makers an easier way to integrate access to their large water-quality databases. A common suite of web services will allow for the automated sharing of water monitoring data via a common format and terminology. The initial project is underway, and the new web services are expected to be completed in November 2007.

A web service is a computer-to-computer protocol that allows for the direct sharing of information. The services will provide the ability to combine data from EPA's STORET and USGS's NWIS systems. The services will produce data formatted according to the Water Quality Exchange (WQX) XML schema, which has been developed by EPA in consortium with USGS, the states, and the tribes. Applications such as internet portals can use the web services to access data from both the STORET Warehouse and the NWIS system without needing an authorized database connection.

The initial set of web services will provide five core methods for accessing the information in these systems. Each of these web services has different input parameters and pre-defined output formats (or schema).

Three data inventory services will provide summary information at different scales. The Watershed Summary Web Service will consist of summary information for the types of data (organizations with data, number of stations, result counts by characteristic type, etc) available within a given watershed (8-digit HUC). Summary information by project including period of record, characteristics monitored, and station names will be available through the Project Catalog Web Service and the Station Catalog Web Service will serve station summary information such as station name, period of record, and result counts by characteristic type.

Monitoring location information and associated water-quality results will be served through the two additional web services. The Station Web Service will provide information for all monitoring locations within a given geographic area (geographic bounding box) and the Results Web Service retrieves water-quality results (measurements) by site.

### KEYWORDS

Data management, water-quality, web services, STORET, NWIS