

## **The Water Quality Standards Database and the National Hydrography Dataset**

The Environmental Protection Agency (EPA) Office of Water has developed a national Water Quality Standards Database (WQSDB) <http://www.epa.gov/wqsdatabase/>. The database displays Water Quality Standards (WQS) for the nation's surface waters. Water quality standards are the foundation of the water quality-based control program mandated by the Clean Water Act. They define the goals for a waterbody by designating its uses, setting criteria to protect those uses, and establishing provisions to protect water quality from pollutants. These water quality standards are established by the states, tribes, and territories and approved by the EPA <http://www.epa.gov/OST/standards/>. The WQSDB has been designed to: (1) Inform the public of EPA Approved Water Quality Standards, (2) Allow states and tribes to show proposed new or revised uses and criteria to public and state officials for adoption, (3) Facilitate EPA review and approval, (4) Facilitate posting updates to the Internet, (5) Be compatible with other water data and information systems so states and tribes can use the WQS data for other programs like 303(d) or 305(b). The analytical capabilities of the WQSDB are further enhanced through the ability to couple the database to the Reach Address Database (RAD) component of Watershed Assessment and Tracking Environmental Results (WATERS) <http://www.epa.gov/waters/> for spatial visualization of the designated use information. A reach indexing process is underway to index the Nation's surface waters designated use information using the medium-resolution National Hydrography Dataset (NHD) as the spatial framework. Reach indexing is the process of assigning positional addresses to the linear extent of a designated use(s) along each stream. By using GIS tools, such as EnviroMapper <http://www.epa.gov/wqsdatabase/enviromapper.html> for Water, the stream segments can be displayed with the use assignment(s) depicted as different colored lines on top of the streams. This type of map display of stream use characterizations relative to roads, cities, state, and county boundaries and other geographic features provides a visual representation of the designated use classifications for the Nation's surface waters. In the next USGS NHD Newsletter, we'll take a closer look at the RAD.

## **Selected Paper Highlights from the 2003 ESRI Conference – II**

NHD Conflation of Tribal High-Resolution Water Quality Standards – Ken Gilland (for Peter Ilieue)  
The Confederated Salish and Kootenai Tribes (CSKT) of the Flathead Reservation have developed a 1:24,000-scale WQSDB and are now attempting to integrate it with the national (1:100,000-scale) WQSDB. The conflation of the CSKT WQSDB was successful for 2,000 out of 6,000 events. The high failure rate is attributed to spatial discontinuity when working with a wide variety of scales. Efforts are underway to reconcile the problems, and these results will be of great interest to spatial data users.

Implementing the National Hydrography Dataset in the U.S. Forest Service – Brian Sanborn  
The National Hydrography Dataset and model are being incorporated into the USFS GIS Data Dictionary for surface water hydrology layers. The implementation must support both local project work and the requirements of the NHD program as a whole. A database and supporting applications are being developed to support the data management, reporting, and analysis requirements. The applications include a data entry interface, spatial data editing tools, and a spatial query and reporting interface. Field data is reported into a database and then becomes available for analysis. The water module supports (1) aquatic inventory, (2) aquatic biota, (3) water rights, and (4) watershed improvement. Map features and spatial navigation provided by the NHD are critical components to the architecture. The data model will associate different kinds of data and different time series with a map object. Each forest will use a local database. Data is stored in a table and can be accessed through either a DBMS interface or a ArcView 8.2/ArcMap 8.3 interface. The project level data will come from the high-resolution NHD in 883

subbasins. This is possible through strong partnerships with the USGS and other federal agencies as well as agreements with 10 states. The system will allow the user to see a stream segment rather than reaches, with each segment composed of multiple reaches. Editing will be possible using a custom toolkit in ArcMap operating on a Geodatabase.

### **NHD in Geodatabase Web Page**

A NHD in Geodatabase page has been added to the NHD home page. It will be updated regularly to keep users informed of events as the NHD adopts the new Geodatabase model. Check: [http://nhd.usgs.gov/geodatabase\\_review.html](http://nhd.usgs.gov/geodatabase_review.html)

### **New Event Migration Tool**

An upcoming version of the NHD Toolkit, version 7.0.0, will contain a tool to allow NHD users greater flexibility utilizing event tables. Events are data that are linked to the NHD using an address along a waterbody, resulting in an NHD-specific georeference. NHD Migrate is designed to provide users with an easy to use tool for migrating tables of point, linear, and areal events to NHD data that has been updated. NHD Migrate is optimized for moving events between NHD of the same version (e.g. from medium resolution NHD to medium resolution), however, it can be used to move from medium resolution NHD to high resolution NHD. When moving from medium to high resolution, there are some cases where the events will not move to the desired location on the reach, however the NHD Migrate QA/QC features will assist the user in locating events that may need adjustment. Future enhancements are planned that will improve the migration from medium resolution to high resolution. Watch for the new 7.0.0 version of the NHD Toolkit to replace the 4.1.5 version at <http://nhd.usgs.gov/tools.html>.

### **Upcoming NHD Training**

August 21, Louisville, Kentucky. This all day workshop will be held at the 2003 Kentucky GIS Conference. It is sponsored by the Kentucky Governor's Office for Technology Office of Geographic Information. Instructors: Terry Higgins [thiggins@usgs.gov](mailto:thiggins@usgs.gov) and Gladys Conaway [gconaway@usgs.gov](mailto:gconaway@usgs.gov).

August 26-28, Lafayette, Louisiana. Three-day NHD Training/Workshop sponsored by the USGS-Louisiana Mapping Partnership Office/University of Louisiana at Lafayette/NASA/RAC/USGS-NWRC. Instructors: Terry Higgins, Gladys Conaway, and Tom Beard.

### **States With Full Coverage Planned**

In addition to the completed full high-resolution coverage for Kentucky and Hawaii; West Virginia, New Jersey, and Utah are weeks away from completion. Firm plans are made for completion of Alaska, Texas, Florida, New York, Pennsylvania, Minnesota, Georgia, Vermont, New Hampshire, Maine, Massachusetts, and Rhode Island. Plans have been made for nearly complete coverage for Idaho, Delaware, Missouri, and California.

### **EPA Grants**

The Environmental Protection Agency (EPA) has an extensive grant program that may help fund NHD activities. Typically these grants are applications oriented and are not oriented for simple data production. The grants are intended for state and tribal entities. Explore the EPA website for more information: <http://www.epa.gov>. Also, look for advice and guidelines for applying for grants at the website.

Section 106 Tribal Pollution Grant Control Program Grants under Section 106 of the Clean Water Act (CWA) are intended to assist Indian Tribes in carrying out effective water pollution control programs. Section 106 grants may be used to fund a wide range of water quality activities including: water quality planning and assessments; development of water quality standards; ambient monitoring; development of total maximum daily loads; issuing permits; ground water and wetland protection; nonpoint source control activities; and Unified Watershed Assessments (UWA) under the Clean Water Action Plan (CWAP). <http://www.epa.gov/owmitnet/mab/indian/cwa106.htm>

Section 319 Nonpoint Source Grants EPA has developed guidelines for the award of Clean Water Act Section 319 nonpoint source grants in FY 2002 and subsequent years. The guidelines are intended to assist states and territories in identifying the process and criteria to be used in distributing Section 319 grants in FY 2002 and subsequent years. The process and criteria for FY 2003 and beyond provide for a more concentrated focus on the implementation of Total Maximum Daily Loads (TMDLs) related to NPS pollution. <http://www.epa.gov/owow/nps/Section319/fy2002.html>

National Environmental Information Exchange Network The Exchange Network is a joint project for sharing environmental data between EPA, states, and other partners over the Internet and will greatly improve the quantity and quality of the environmental information EPA provides to U.S. citizens. Completion of this network will consolidate air, water, waste, and toxics data; simplify industry's reporting requirements; and provide the public with meaningful, real-time access to environmental information. The grant funds will be used for environmental information projects that promote: (1) Exchanging environmental information with other states and partners using common formats. (2) Integrating different types of data within states, including air, water, waste and toxics. (3) Reconciling inconsistencies between different data reporting sources, and (4) Creating a single node for submission of data to EPA Headquarters. [http://www.epa.gov/epahome/headline\\_080802.htm](http://www.epa.gov/epahome/headline_080802.htm)

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Thanks to Cindy McKay.

Jeff Simley, USGS, assumes full responsibility for the content of this newsletter.