

USGS National Hydrography Dataset Newsletter  
Vol. 10, No. 8, June, 2011  
by Jeff Simley, USGS

## **The National Map User's Conference**

*The National Map Users Conference* for 2011 is now in the books. The inaugural event took place May 12-13 in Golden, Colorado with more than 425 participants. The over-capacity crowd included 16 Federal agencies, state and local government, academic institutions, vendors and international representatives. The fast-paced program included 66 concurrent sessions, panel discussions, three listening sessions, product review opportunities, the Gannett Award ceremony <http://nationalmap.gov/gannett/recipients.html> and plenty of networking. The Conference was preceded by the two-day, technology-focused USGS GIS Workshop held at the nearby Denver Federal Center. Hydrography was a major topic at the conference and workshop with 36 papers on the NHD, WBD, NHDPlus, and related topics. Videos, pictures, presentation slides, Conference proceedings and other information products will be posted here as they become available. Check <http://nationalmap.gov/uc/>.

## **Hydrography at the Esri User Conference** by Ariel Doumbouya

Tue, Jul 12, 8:30AM - 9:45AM Location: Room 25 C

Session Title: Watershed Boundary Dataset Tools

### ***WBD Tools***

Stephen Daw, GISP, USGS

### ***A Schema and Delineation Method for a Drainage-Basin Geodatabase***

Jean Dupree

### ***WBD Applications Panel***

Karen Hanson, USGS Water

### ***New Jersey Updates to the Geographic Names Information System***

Craig Coutros

Tue, Jul 12, 10:15AM - 11:30AM Location: Room 25 C

Session Title: NHD and NHDPlus Development

### ***NHD Update Process Improvements***

Paul Kimsey, USGS

Henry Nelson, USGS

### ***The Importance of Incorporating Diversions in the National Hydrography Dataset***

Kristiana Elite, U.S. Geological Survey

### ***Moving Forward with the National Hydrography Dataset Plus (NHDPlus)***

Tommy Dewald, USEPA - Office of Water

### ***Major Enhancements for NHDPlus Version 2 Grids***

Richard Moore, U.S. Geological Survey

Alan Rea, U.S. Geological Survey

Craig Johnston, U.S. Geological Survey

Tue, Jul 12, 12:00PM – 12:45PM Location: Room 25 C

Session Title: NHD User Group Meeting

Update on NHD by Paul Kimsey, U.S. Geological Survey

Tue, Jul 12, 1:30PM - 2:45PM Location: Room 25 C

Session Title: NHD Applications

***Applications of the National Hydrography Dataset***

Kathy Isham, U.S. Geological Survey

***Hydrography Event Management Tools- New Features and EPA Add-ons***

Kibri Everett, RTI International

Ariel Bates, U.S. Geological Survey

Danette Boezio, RTI International

Thomas Dewald, US EPA

***Methodology to Generalize the National Hydrography Dataset Using Environmental Data***

Michael Tinker, University of Colorado Denver

## **Colorado Flood Decision Support System**

The State of Colorado has developed an interactive mapping application to provide a statewide clearinghouse of flood-hazard and related information. See <http://flooddss.state.co.us/>. Click on the Flood DSS Map Viewer and then zoom in to an area of interest. Take a look at the table of contents on the left and try turning on and off layers. Note streamgages, snowpack, precipitation, and other layers including the NHD. The viewer is not amazingly fast, but reasonable, and a very comprehensive application worth slight delays in viewing.

### **Recent Updates to WBD Data** by Karen Hanson

Some significant additions are being included into the WBD and are now available at the Natural Resource Conservation Service web site. This is the version that will be used as the WBD snapshot for the next WBD refresh inside of NHD. In this version there will be additional inclusion of harmonized US/Canadian HU8's along the Alaska border with Canada. Through this collaborative process, not only were some HU-8's significantly altered but one area along the Alaska/Canadian border resulted in a new HU-4 (1907). The first workshop to harmonize 10- and 12-digits in the Souris River basin along the US/Canadian border was held last January. The second workshop was in Victoria, BC the first week of June for 10- and 12-digit harmonization for 19 additional HU-8's in Hydro Region 17.

A number of updates have been made to the California WBD to include the addition of the US/Mexico HU-8's along that portion of the border. Also within California, an extensive statewide review and update of downstream codes has been completed, as well as a statewide names review and update in preparation for GNIS integration. The most significant changes to the CA WBD came from applying the new WBD Coastal Standard which moved the outer extent out to the NOAA 3-nautical mile line. This resulted in significant HU-8 alterations to 3 major bays along the coast (San Pedro, Bodega, and Monterey), and adjustments to some of the 10- and 12-digit hydrologic units.

WBD Dataset downloaded from NRCS:

By state, county, or area <http://datagateway.nrcs.usda.gov/>

National Seamless, by HU8 or HU12 <ftp://gateway2.ftw.nrcs.usda.gov/Gateway/WBD>

*(Note: the HU directory from this site houses each states latest metadata with details, as well as the general national metadata)*

WBD Dataset downloaded from USGS:

Within NHD, through The National Map, by 2-12 digit, or area

<http://nationalmap.gov/viewers.html>

*(Note: this is currently a WBD snapshot from late October 2011, and will be refreshed with a June 2011 snapshot this month)*

## **Cross Scale Indexing of Stream Gages Using the HEM Tool** by Ariel Doumbouya

If NHD gages are referenced to the medium resolution (1:100,000-scale) NHD (or any other scale) and need to be indexed to the current high resolution (1:24,000-scale) NHD, the HEM Tools provide a method to do this in just a few steps: (1) First, download the current high resolution NHD and the gages to be indexed. (2) Run the HEM Batch Synchronization tools to ensure the gages are in the correct location. Perform any required updates. (3) Next, use the HEM Import tool to import the gages that need to be indexed. Review and make any required updates with the HEM QA/QC tools. (4) Finally, apply these changes to the base data. Simple as that!

In a test study of HU-4 1401, of 312 total gages, synchronization was performed in 10 minutes. 15 of the 312 gages from the desired import were not indexed to the current high res NHD. These were isolated, imported, and applied to the NHD data in 10 minutes. In total, this synchronization and import process took 25 minutes to complete. Alternatively, assuming none of the 312 gages were in the current NHD, an import only process was investigated. Using the HEM Tool Import, 95% of records were snapped from the medium resolution location to a location that was coincident with the current 24k NHD location. For more information contact [HEM@usgs.gov](mailto:HEM@usgs.gov) or view the detailed report at: [https://my.usgs.gov/Public/HEM\\_Tools/CrossScaleIndexing\\_06062011\\_AD.pdf](https://my.usgs.gov/Public/HEM_Tools/CrossScaleIndexing_06062011_AD.pdf)

## **NHD Photo of the Month** by Kathy Isham

This photo was submitted by John Todesco of the USGS in Denver, Colorado. It highlights a waterfall in Jumpoff Canyon near Ogden, Utah. To see the photo of the month and a map of its location go to [ftp://nhdftp.usgs.gov/Hydro\\_Images/Weber\\_River.jpg](ftp://nhdftp.usgs.gov/Hydro_Images/Weber_River.jpg). Submit your photo for the NHD Photo of the Month by sending it to [krisham@usgs.gov](mailto:krisham@usgs.gov). This will allow the program to build a library of real-world photos linked to the NHD.

## **May Hydrography Quiz / New June Quiz**

The NHD quiz finally stumped the chumps. None of our readers correctly answered the quiz albeit on a technicality. See <ftp://nhdftp.usgs.gov/Quiz/Hydrography70.JPG>. Many readers answered the quiz by stating that the Missouri River is longer. By definition the Missouri River starts at the confluence of the Jefferson, Madison, and Gallatin Rivers and terminates at its confluence with the Mississippi River. This distance is 2,320.495 miles. The Mississippi meanwhile, which starts at Lake Itasca in Minnesota and drains to the Gulf of Mexico, is 2,323.943 miles, making it longer than the Missouri. The longest path of the Missouri, the Missouri-Jefferson-Beaverhead-Red Rock, is 2,530.829 miles. The longest path of the Missouri system, the Mississippi-Missouri-Jefferson-Beaverhead-Red Rock, is 3,695 miles, making it the fourth longest river system in the world.

The distances calculated in the NHD use the Artificial Path. The Artificial Path is the conceptual centerline of the river. It is intended to be the mathematical centerline, but this is not always the case. Sometimes the Artificial Path “wanders” a bit from side-to-side going from a confluence on the right, to a confluence on the left, but this is very minimal and probably does not affect the distance by lengthening it more than 0.01% (cosine of one degree). On rare occasions the wandering is large. Another issue is that a river such as the Missouri makes many sharp bends or even horseshoe bends, the Artificial Paths are not necessarily curvilinear, but often straight segments approximating a curve. This would seem to shorten the length slightly. The Missouri, for example, also flows through many impoundments forming large lakes and perhaps the Artificial Paths are less suitable for measuring distance. To measure the distance of the river in these impoundments there are choices to measure the shortest line distance or the original submerged channel. All-in-all, however, the Artificial Paths are most likely adequate for measuring river distance.

This month's hydrography quiz can be found at <ftp://nhdftp.usgs.gov/Quiz/Hydrography71.pdf>. Name the dam on the Mississippi River. For extra credit, what is the name of the dark blue portion of the river? Careful, the NHD got it wrong. Send your guess to [jdsimley@usgs.gov](mailto:jdsimley@usgs.gov).

### **Upcoming NHD Training**

Hydrography Event Management tool 4-hour WebEx training.

Sign up at: <http://nhd.usgs.gov/tools.html#hem> Contact: [HEM@usgs.gov](mailto:HEM@usgs.gov)

Getting Started Part 1 - August 17

Advanced Editing Part 2 - September 7

Data Maintenance Part 3 - September 28

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Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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The NHD Newsletter is published monthly. Get on the mailing list by contacting [jdsimley@usgs.gov](mailto:jdsimley@usgs.gov).

You can view past NHD Newsletters at [http://nhd.usgs.gov/newsletter\\_list.html](http://nhd.usgs.gov/newsletter_list.html)

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