USGS National Hydrography Dataset Newsletter
Vol. 11, No. 8, June, 2012
by Jeff Simley, USGS

NHD Update toolbar 4.0.2 by Paul Kimsey

Since the release of the NHD Update toolbar in March, 2012, the development of new NHD Update toolbar 4.0.2 has been a high priority. It became apparent that a new version was required to address not only bugs identified in version 4.0.1, but also to address functionality oversights and to add a few "nice to haves." A few highlights for the 4.0.2 version include: (1) a "Backup Job" option to allow the editor to easily create a copy at any given point in the workflow, (2) ability to allocate reachcodes for blank or Null reachcode values using the modify attribute table, (3) an option to "Submit Job for Review" that will notify the appropriate USGS regional POC that an editor is in need of assistance to move a Job forward, and (4) a more efficient method for managing memory clean up.

NHD Update toolbar 4.0.2 development is nearing completion and will be released after one final round of internal testing scheduled for next week. Release notes will be distributed with the new version and provide detailed information. The USGS is confident that editors will find this new version superior to version 4.0.1 and will offer USGS the opportunity to focus on the migration to ArcGIS 10.1.

NHD and WBD Related Papers at the Esri International User Conference

Every year the Esri International User's Conference is an opportunity for the water science geospatial community to gather and present their work. In addition to helping scientists exchange the latest technologies, it provides valuable guidance for the U.S. Geological Survey to understand how the National Hydrography Dataset and Watershed Boundary Dataset can meet the needs of water science. Listed below are most of the water related sessions with papers highlighted of particular interest to the NHD and WBD communities. Double-check the Esri agenda if you plan to attend.

Tue, Jul 24, 8:30AM - 9:45AM – Room 31A
Linear-Referenced Coastal Geomorphology in the National Hydrography Dataset
Cynthia Miller-Corbett, Jeff Simley, U.S. Geological Survey

Tue, Jul 24, 8:30AM - 9:45AM – Flood Modeling – Room 25C
A GIS Flood Tool for Rapid Inundation Mapping
Kristine Verdin, James Verdin, U.S. Geological Survey, Melissa Mathis, SGT
Using ArcHydro and LiDAR to Improve Drainage in Monroe County
Justin Cole, Monroe County

Tue, Jul 24, 10:15AM - 11:30AM - Watershed Modeling and Characterization I – Room 25C

Tue, Jul 24, 12:00PM – National Hydrography Dataset User Group Meeting – Room 25C

Tue, Jul 24, 1:30PM - 2:45PM – NHD Applications – Room 25C
Linking Hydrography Information to the National Hydrography Dataset
Jeffrey Simley, Ariel Doumbouya, U.S. Geological Survey
New Protocol for NHD Coastal Watershed Revision and Updating
James Mitchell, Kurt Johnson, Louisiana Dept. of Transportation and Development
Sean Deinert, GeoDigieal Mapping, International Services

Tue, Jul 24, 3:15PM - 4:30PM – NHDPlus V2 – The Next Generation – Room 25C

NHDPlus V2 – Next Generation of Stream Vector/Attribute Data
Cindy McKay, Horizon Systems Corporation, Tommy Dewald, US Environmental Protection Agency
Improved DEM Derivatives in the NHDPlus Version 2
Alan Rea, Craig Johnston, Richard Moore, U.S. Geological Survey
Improved Flow Estimates and QA in NHDPlus Version 2
Timothy Bondelid, Independent Consultant
NHDPlus – A Tool for SPARROW Watershed Modeling
Richard Moore, U.S. Geological Survey

Wed, Jul 25, 8:30AM - 9:45AM – Watershed Modeling and Characterization II - Room 25C
Catchment & overland flow pathway description using liDAR
Sultana Baby, Bass Coast Shire Council
Alternative method for automatic coding of stream order
Gido Langen, Surveyor General Branch, Jerry Griffith, NA

Wed, Jul 25, 10:15AM - 11:30AM - Watershed Boundary Dataset and Applications – Room 25C
The Watershed Boundary Dataset, An Evolving National Treasure
Stephen Daw, U.S. Geological Survey
Watershed Boundary Dataset Stewardship, Enhancements for Programmatic Needs (Alaska Example)
Karen Hanson, U.S. Geological Survey
Providing Geography for Topology; A Schematic View of the WBD
Kurt Johnson, James Mitchell, LaDOTD

Wed, Jul 25, 1:30PM - 2:45PM - US-Canada Data Harmonization Program – Framework – Room 23B
Building a Bi-National Stewardship Framework: Canada – US
Michael Laitta, International Joint Commission of Canada and US, Conrad Wyrzykowski, Agriculture and Agri-Food Canada, Karen Hanson, U.S. Geological Survey
International Joint Commission; Canadian - US Hydrographic Data Harmonization- Status
Michael Laitta, International Joint Commission of Canada and US
Conrad Wyrzykowski, Agriculture et Agroalimentaire Canada, Dave Harvey, Environment Canada, Water Survey Canada, Karen Hanson, U.S. Geological Survey
NHD-NHN: Building a Bi-National Framework
Pete Steeves, U.S. Geological Survey, Michael Laitta, International Joint Commission Canada and the US
IJC International Watersheds Initiative: Local Approaches to International Issues
Ted Yuzyk, International Joint Commission, Canada and the US, Michael Laitta, International Joint Commission of Canada and the US

Wed, Jul 25, 1:30PM - 2:45PM - Water Resources Modeling - Case Studies – Room 25C

Wed, Jul 25, 3:15PM - 4:30PM - Water Resources – Room 24C
Using GIS Techniques and Field Methods to Analyze Karst Terrain
David Ladd, U.S. Geological Survey

Wed, Jul 25, 3:15PM - 4:30PM - US-Canada Data Harmonization Program – Applications – Room 23B
Watershed Boundary Dataset - US/Canadian Data Harmonization: Great Lakes Basin
Kimberly Jones, U.S. Geological Survey, Conrad Wyrzykowski, Agriculture and Agri-Food Canada
IJC Dam Harmonization: International Swath of the Columbia River Basin
Scott Campbell, U.S. Army Corps of Engineers, Judy Kwan, Environment Canada
Drainage Areas(up-from-gauge) in Canada: Creating the National Dataset
Judy Kwan, Dave Harvey, Louis Liu, Environment Canada

The Red-Assiniboine SPARROW Project – Leveraging International Geospatial Harmonization
Robert Jenkinson, National Research Council Canada, Mike Laitta, International Joint Commission

Wed, Jul 25, 3:15PM - 4:30PM - Water Resources Data Systems – Room 25C
Improving Access to Water Information: The NWIS Web Services Snapshot
Sally Holl, U. S. Geological Survey

Thu, Jul 26, 8:30AM - 9:45AM - Water Quality Modeling and Assessment – Room 26A

Thu, Jul 26, 8:30AM - 9:45AM - GIS for Flood Management – Room 17B
When the flood waters are rising, who'll do the maps?
Christina Boggs, Jaime Matteoli, Jane Schafer-Kramer, Jonathan Mulder, California Department of Water Resources

Thu, Jul 26, 10:15AM - 11:30AM - Water Resources Data Development Techniques – Room 26A
Populating NWIS with Information Extracted from USGS Map Services
Scott Whitaker, Steven Predmore, U.S. Geological Survey
Storing Stream Restoration Assets and Representations in a Geographic Database
John Dean, Gwinnett County Water Resources

Thu, Jul 26, 12:00PM – Water Resources User Group – Room 26A

Thu, Jul 26, 3:15PM - 4:30PM - Water Resources Information Systems – Room 26A
The Fountain Creek Watershed - Surface Water Application
Jerry Cordova, City of Fountain

Continental Divide Diversions in Colorado by Kristiana Elite

The incorporation of diversions in the NHD will allow for more accurate water modeling, empowering decision makers and researchers with intelligent information to help address today's water issues and better prepare for the future. Diversions are a critical component in telling a comprehensive story of water in the United States. Currently, the NHD is updating major diversions across the nation with the initial focus area being the western U.S. The NHD is also updating diversions that transfer water at the higher hydrologic unit levels; the highest being an inter-regional transfer. The best example of such transfers are those diversions that cross the Continental Divide, diverting water from the western slope to the more arid and populated eastern slope of Colorado. In cooperation with the Colorado Department of Water Resources, the U.S. Geological Survey identified and updated 24 such diversions that cross the Divide in Colorado. Notable diversions include the Roberts Tunnel and the Moffat Tunnel; both of which serve as the major drinking water supply for the Denver metropolitan area. The types of updates performed were the geometry of the conveyance features such as flow direction, connectivity, and GNIS information as well as adding/updating divergence point events. A withdrawing point event locates the place on the network where the diversion withdraws water from the natural system on the western slope while the contributing point event identifies where it is being received on the landscape on the eastern slope. All updates allow for more accurate water modeling with additional information such as the location of those withdrawing/contributing points, the tracing of a diversion's pathway, and the ability to identify at which hydrologic unit level water is being transferred.

New Stewardship Check-out Feature Selection for Child Replicas by David Anderson

Stewards are receiving a new check-out feature selection process for editing subbasins. Previously, the selection process was to select all intersecting features within the subbasin, and then select all features

(including external features) with reachcodes contained in the selected subbasins, and lastly to remove features with reachcodes that did not match the subbasin. This selection process was very good at providing clean working datasets to stewards.

With the many changes to drainage boundaries coming down through the integration of the WBD, NHD has been attempting to catch all the features that needed reach migration, but some might have been missed. During an extract, the old selection process led to some of these missing features. If the feature was outside the subbasin boundary and the features reachcode did not match any reachcode within the selected subbasin, it was ignored.

As of 17 May, a new selection process has been implemented that will solve this problem. The new selection process does mainly the same thing with the exception that it now adds any feature outside the selected subbasin that has a reachcode that matches the subbasin. In addition, features that intersect the subbasin that have reachcodes not related to the subbasin are not deleted. This will prevent any "missing" features and will identify features that require reach migration at the same time or are duplication that need to be removed.

The WBD Federal Standards link

The link published last month may not work. If you have trouble, try this:
 http://pubs.usgs.gov/tm/tm11a3/pdf/WBD-Ed3_052212.pdf

NHD Photo of the Month

This month's photo was taken by DJ Brewer, a hydrography enthusiast from Houston from her window as she flew east from San Diego. To see the photo of the month go to ftp://nhdftp.usgs.gov/Hydro_Images/Riverrunsthroughit.jpg. Submit your photo for the NHD Photo of the Month by sending it to 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

Florence Thompson was the first to guess the May NHD Quiz as the Rio Chama is northern New Mexico. See ftp://nhdftp.usgs.gov/Quiz/Hydrography82.pdf. The famous Taos artist Georgia O'Keefe painted this river in her noted work *Blue River* (1929). It's known by many as the Chama River, but the official name found in GNIS is Rio Chama. Florence is a geographer at the USGS-Texas Water Science Center (TWSC) in Austin, Texas. The Center has about a dozen geographers, physical scientists, IT specialists, and web developers collaborating on a variety of water related GIS projects. Florence's primary work for the last few years has been the creation of 1:1,000,000-scale hydrographic data for the National Atlas of the United States. The dataset includes waterbodies, coastlines, and networked stream gages and streams. It is also vertically integrated with other 1:1,000,000-scale National Atlas datasets such as transportation features, and county, state, and national boundaries. It should be available soon for download at http://www.nationalatlas.gov/ and as a WMS. The original source for the hydrographic data was the medium resolution NHD. Other work at TWSC includes: geodatabase development, cartography, data management, watershed modeling, watershed delineation and characterization, mapping applications for the web, mobile apps, and custom ArcGIS Add-Ins. For more examples and detailed descriptions of recent projects, see http://tx.usgs.gov/GIS/.

Others with the correct answer (in order received) were Al Rea, Jim Mitchell, Rich Stein, David Anderson, Edwin Abbey, Roger Barlow, Kitty Kolb, Evan Hammer, and Claire DeVaughan.

From Rich Stein: "The red line represents the Rio Chama. The Chama's headwaters are in Colorado just north of the New Mexico line. It travels about 130 miles through north-central New Mexico to its confluence with the Rio Grande just north of Espanola. Visible on the map to the west of the Chama is a straight, gray, nearly-vertical line representing the Azotea Tunnel. This tunnel is a component of the San Juan-Chama Project which diverts water from the upper Colorado River basin, under the Continental Divide and into Willow Creek and then the Chama. The large white space with dark blue lines in a star pattern is Heron Reservoir, also part of the Project."

This month's hydrography quiz can be found at ftp://nhdftp.usgs.gov/Quiz/Hydrography83.pdf .   Name the pond outlined in cyan. It's the most famous pond in literature. Enough said. Send your guess to jdsimley@usgs.gov.

_____