

USGS National Hydrography Dataset Newsletter
Vol. 15, No. 1, November 2015
by Jeff Simley, USGS

Fifteenth Year of the NHD Newsletter

With this edition the National Hydrography Dataset Newsletter starts its fifteenth year. So far 169 Newsletters have been produced on a continuous monthly release schedule totaling over 863 pages of information designed to keep the NHD and WBD communities up-to-date on the product and program. Much of the content has been written by contributors making up the vast team of people it takes to make the NHD and WBD the premier datasets of the GIS industry. As always, if you work in any segment of the NHD or WBD enterprise and have information that can help your colleagues, please submit an article or information to the Newsletter. The Newsletter is directly sent to 525 recipients and is then forwarded to at least another 500 people in numerous agencies.

NHD Updates to Support Alaska US Topo Production by Chris Lund

The USGS is beginning its fourth year supporting US Topo production for Alaska. In fiscal years 2013 to 2015 the USGS NHD production operations supported the completion of 1,763 quadrangles. In fiscal year 2016 the USGS is planning production of 1,979 quadrangles and to date have completed NHD updates for 730 of them (36% of plan). As in past years the USGS has focused on using SPOT imagery along with hydrography breaklines delivered with the ifsar-derived elevation data to do limited map revision. The USGS is also updating NHD ice mass features using data from the Randolph Glacier Inventory, updating feature names, and is ensuring that network flow and topology issues are addressed. NHD production support activities will be completed in the second quarter of the fiscal year (March), while USTopo production support will be completed by the end of the fiscal year (September).

Update coming for NHD Utilities by David Anderson

An update is coming for the NHD Utilities, specifically the NHD M-Values and BuildFlow utilities. These two utilities received a few tweaks in the past few months in support of the high-resolution NHDPlus project.

The BuildFlow utility builds the NHDFlow table that describes the network connections between NHDFlowline features that have “with digitized” flow direction. The update includes an algorithm that looks at island coastal features, where islands have more hydrography than just a coastline, and prevents the circular flow path around the coastlines (which was previously the case).

BuildFlow also added a new optional feature that describes the In/Out flows of both HU4 and HU8 hydrologic units in the NHDFlow table. This allows for a “straight through” flow on the unit. This option uses a web service and looks at all features within a 1-mile buffer of the WBD boundary, identifies those with a network-start or network-end code, and checks to see if there is an externally connected feature that has either a from- or to-node attached to the internal features. Once it identifies a connection it updates the NHDFlow table to show that there is external flow at that feature.

The NHD M-Values utility now uses a modified algorithm to introduce the ability to explicitly set a tolerance distance for assuming connectivity between features of the same reach (i.e. so proximate from-points and to-points which should be presumed connected are not erroneously kicked out as errors). The tolerance used is the same as the inter-reach connectivity (micro-gap) tolerance of up to 4-meters. Any gap greater than 4m is considered a network gap and the M-Values utility will continue to have errors on these features.

The release of the new utilities will occur once all testing and incorporation with NHD Update and enterprise extraction has been accomplished.

Elizabeth Stevens-Klein Joins USGS Hydrography Team by Paul Kimsey

Elizabeth Stevens-Klein comes to the USGS from the U.S. Army Corp of Engineers (USACE) to become the Point of Contact for the Watershed Boundary Dataset stewardship program. Elizabeth is assigned to the National Geospatial Technical Operations Center (NGTOC) Partner Support section. Elizabeth notes that “Working for USGS has been a goal of mine since college, so I’m very excited to be here with the NGTOC and am looking forward to working with everybody!”

Elizabeth grew up on a garlic farm in Paonia, Colorado, which fostered her passion for all things science. When she came across the Geography and Environmental Studies program at the University of Colorado at Colorado Springs (UCCS) and took her first GIS course she knew she had found her passion. She registered for as many GIS and physical science courses as possible and completed an honors thesis that assessed erosion on the campus bluffs using GPS and GIS. She majored in GIS/Geography and Environmental Studies, received a GIS Certificate, and a minored in philosophy. While at UCCS, she was awarded a Department of Defense "Scholarship for Service" program, called a SMART Scholarship, and was chosen by the USACE to fill a GIS position with the Environmental Engineering Branch in Sacramento where for the past three-and-a-half years she has acted as their GIS Specialist.

Erik Ahl Joins the USGS Hydrography Team by Steve Howard

Erik Ahl was originally born in San Diego and grew up on the East coast. His father was an amateur geologist, so Erik was raised with rocks, fossils and occasional digs. Erik’s never been one to stay inside, always running around exploring the outdoors and catching every reptile and amphibian that he came across. Erik went on to pursue his B.S. in Environmental Science at Western Carolina and Chapel Hills Institute for the Environment program at the Highlands Biological Station. He’s currently completing my M.S in Environmental Science and GIS Certificate at the University of Colorado, Denver. In Erik’s free time, depending on season, he’s in the mountains riding his bike, backpacking, mountaineering, snowboarding, etc. Erik says “I’m very honored to be a part of the USGS and look forward to becoming a valuable part of the team here at the National Geospatial Technical Operations Center.”

Mike Tinker Promoted to Partner Support Section by Paul Kimsey

Mike Tinker has worked in the USGS National Geospatial Technical Operations Center for the past year-and-a-half as the Hydrography Event Management (HEM) lead. Many who work with the NHD are familiar with Mike and the great job he has done in this role. Mike has now received a promotion to a position in the Partner Support section in which he will take on greater responsibility to manage the event management activities of the NHD. Event management deals with the linear referencing of water observations linked to the NHD. These observations include such things as stream flow, water quality, fish habitat, water diversions, and dams. They are a significant factor in the enrichment of the NHD from data to information. Mike will continue to provide HEM help desk support for the general user community, provide HEM/NHD update training, act as the HEM tool product owner for maintenance and enhancements, and provide daily technical support.

Clean Water Rule: Definition of “Waters of the United States”

Identifying and understanding the “Waters of the United States” has always been difficult issue for those managing water resources. It has now become an issue of greater interest to those working with the National Hydrography Dataset and USGS topographic mapping. Here’s why: “The Environmental

Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) are publishing a final rule defining the scope of waters protected under the Clean Water Act (CWA or the Act), in light of the statute, science, Supreme Court decisions... and the agencies' experience and technical expertise. This final rule reflects consideration of the extensive public comments received on the proposed rule. The rule will ensure protection for the nation's public health and aquatic resources, and increase CWA program predictability and consistency by clarifying the scope of "waters of the United States" protected under the Act."

Reviewing the "Final Clean Water Rule" (<http://www2.epa.gov/sites/production/files/2015-06/documents/epa-hq-ow-2011-0880-20862.pdf>) there is some phrasing that the NHD community should at least be aware of, and follow closely.

On page 37076, toward the bottom of the left column, is this line - "To determine whether a water meets this aspect of the definition, the connection can be traced using direct observation, U.S. Geological Survey (USGS) data, stream datasets such as the National Hydrography Dataset, aerial photography or other reliable remote sensing information, or other appropriate information."

A similar statement spans pages 37076 to 37077 - "Among the types of remote sensing or mapping information that can assist in establishing the presence of water are USGS topographic data, the USGS National Hydrography Dataset (NHD), Natural Resources Conservation Service (NRCS) Soil Surveys, and State or local stream maps, as well as the analysis of aerial photographs, and light detection and ranging (also known as LIDAR) data, and desktop tools that provide for the hydrologic estimation of a discharge sufficient to create an ordinary high water mark, such as a regional regression analysis or hydrologic modeling."

Further on page 37077 - "Both the USGS topographic data and the NHD data assist to delineate tributaries to traditional navigable waters, interstate waters, or the territorial seas. Where one or both of these sources have indicated a "blue line stream," there is an indication that the tributary could exhibit a bed and banks and another indicator of ordinary high water mark."

There is a huge amount of information in the referenced document. Only a few lines have been included here, perhaps just enough to whet your appetite. To learn more, look through the document.

NHD Network Improvement Project November 2015 Status Report by Cynthia Ritmiller

Initial Phase Network Improvement – Remaining

Region 19 (Alaska) is being completed as part of the Hydrographic Image Update project using the 2012 Horizon Systems QA/QC check results.

Initial Network Improvement Regions Completed:

01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, and 22.

Double Check Phase Network Improvement- Status:

- Region 01 - Sub-regions 0101-0109 were sent to Horizon systems in August and are being processed in the creation of HiRes NHDPlus. The one remaining sub-region 0110 will be sent to Horizon Systems soon.
- Region 02 - New pre-staged Sub-Regions 0202-0206 and 0208 were received and QA/QC checks were ran edits are being completed. Sub-region 0207 QA/QC edits are complete and will be sent to Horizon Systems for the creation of HiRes NHDPlus soon.

- Region 03 - Three sub-basins need to be reviewed and may need edits, sub-regions include 0309 and 0311. Cynthia Ritmiller will complete these edits working with our partner's schedules.
- Region 04 - Several sub-basins need to be reviewed and may need edits. Sub-regions include 0407, 0407, 0414, and 0415. Will complete these edits working with partners.
- Region 05 - New pre-staged Sub-Regions were received, QA/QC checks have been run for all sub-regions and are ready to review. POC's have already been contacted.
- Region 06 - The entire region (Sub-regions 0601, 0602, 0603, and 0604) was sent to Horizon Systems in August for the creation of HiRes NHDPlus.
- Region 07 - New pre-staged Sub-Regions were received. QA/QC checks have been run for all sub-regions and are ready to review. POC's have already been contacted.
- Region 08 - Sub-regions 0801-0807 edits were completed. Sub-regions 0808, and 0809 need QA/QC checks run and edits will be assigned and completed.
- Region 09 - Completed double check phase. As new data becomes available it will go through QA/QC check process again.
- Region 10 - Completing QA/QC checks within this region. As data is complete it will be sent to Horizon Systems for the creation of HiRes NHDPlus.
- Region 11 - Completed double checks within this region in October.
- Region 12 - New pre-staged data in sub-regions 1210 and 1211 were received, QA/QC checks were ran and edits are being completed by. Sub-regions 1201-1209 QA/QC edits are complete and will be sent to Horizon Systems for the creation of HiRes NHDPlus soon.
- Region 13 - Completed double check phase. As new data become available it will go through QA/QC check process again.
- Region 14 - New pre-staged data in sub-region 1401 was received. QA/QC checks were run and edits are being completed. Sub-regions 1402-1408 QA/QC edits are complete and will be sent to Horizon Systems for the creation of HiRes NHDPlus soon.
- Region 15 - New pre-staged data in sub-region 1508 was received. QA/QC checks were run and edits are being completed by. Sub-regions 1501-1507 QA/QC edits are complete and will be sent to Horizon Systems for the creation of HiRes NHDPlus soon.
- Region 16 - Completed double checks phase. As new data become available it will go through QA/QC check process.
- Region 17 - Four sub-basins need to be reviewed and may need edits, sub-regions include 1701, 1705, and 1707. Will complete these edits working with our partners.
- Region 18 - Completed double check phase. As new data become available it will go through QA/QC check process.
- Region 19 (Alaska) - Initial Phase Network Improvement in progress see above.
- Region 20 - Completed double check phase
- Region 21 - Completed double check phase
- Region 22 (Pacific Islands) - Sent to Horizon Systems to begin producing HiRes NHDPlus.

Note: Regions will be edited as per the NHDPlus contract schedule. Before starting a Region the area POC will be contacted. This status report is current as of October 29, 2015.

October Hydrography Quiz / New November Quiz

Jonathan Labie of York Risk Services Group was the first to correctly guess the October NHD quiz as the Sacramento River draining the Sacramento Valley in California. See <ftp://nhdftp.usgs.gov/Quiz/Hydrography123.jpg>

Jon no longer works directly with the NHD. He says “I am just a former NHD editor that still receives and enjoys the monthly newsletter.” After leaving the NHD Program at Florida Department of Environmental Protection in February Jon made his way north to the Appalachian Trail where he spent a month and a half covering 350 miles from Springer Mountain, Georgia to Erwin, Tennessee. Jon currently works for York as a private contractor for FDEP’s Petroleum Restoration Program (PRP). PRP is responsible for the technical oversight, management, and administrative activities necessary to prioritize, assess, and cleanup sites contaminated by discharges of petroleum and petroleum products from stationary petroleum storage systems.

Others with the correct answer (in order received) were: Gerry Daumiller, Al Rea, Joanna Wood, Linda Davis, Roger Barlow, Barb Rosenbaum, Donna Knifong, Lorri Peltz-Lewis, Calvin Meyer, Bernie McNamara, Becca Conklin, Tom Falk, David Hockman-Wert, Tom Shindler, James Sherwood, Tom Denslinger, Evan Hammer, Jim McDonald, David Straub, Matt Rehwald, Edwin Abbey, John Kosovich, Jill Templeton, Steve Aichele, Daniel Button, Dave Patterson, Ron Wencil, Brad McMillan, and Jon Becker.

This month’s hydrography quiz can be found at <ftp://nhdftp.usgs.gov/Quiz/Hydrography124.jpg>. This is an important river in Texas. The surrounding hydrography is that of Texas-Gulf Hydrologic Region. What is the river in red? Send your guess to jdsimley@usgs.gov.

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

Thanks to Chris Lund, David Anderson, Paul Kimsey, Steve Howard, Steve Aichele, and Cynthia Ritmiller.

The NHD Newsletter is published monthly. Get on the mailing list by contacting jdsimley@usgs.gov.

You can view past NHD Newsletters at http://nhd.usgs.gov/newsletter_list.html

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