

USGS National Hydrography Dataset Newsletter
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by Jeff Simley, USGS

Planning the USGS Hydrography for the Year Ahead

The U.S. Geological Survey uses an annual cycle to plan for the upcoming fiscal year, which starts October 1. The big change coming to fiscal year 2015 is the production of NHDPlus for the high resolution NHD. The NHDPlus has a long and highly successful history. It has been based on the medium-resolution (1:100,000-scale) NHD, which is suitable for many applications, but results in the need to maintain two separate NHD datasets. Creating the NHDPlus on the high resolution NHD will allow consolidating resources on a single dataset while giving NHDPlus users access to the level-of-detail found in the high resolution NHD, and high resolution users access to the rich characteristics of the NHDPlus. The NHDPlus has four important improvements: (1) Value Added Attributes that provide more sophisticated power to the analysis of the network, (2) an elevation model with flow characteristics that match the NHD, (3) drainage catchments for each flowline, and (4) flow volume and velocity estimates for each flowline. The production of the high resolution NHDPlus is expected to take three years.

Other work in fiscal year 2015 will involve the continued maintenance and development of tools including update tools, conflation tools and event management tools. Work will continue on generalization capabilities, which will be greatly enhanced by the NHDPlus. Many “routine” operations are also needed such as the delivery of data, quality assurance, data maintenance, stewardship support, maintaining standards, maintenance and development of tools and processes used internally, and maintaining Steamer. The program also includes the continued development and maintenance of the Watershed Boundary Dataset.

Announcing a GeoConflation (GCT) Process Overview by David Anderson

During the next GeoConflation Technical Exchange Meeting (TEM), David Anderson will be presenting a high-level overview of the GeoConflation process. This overview is meant for stewards and/or sub-stewards interested in performing conflation and updating in the NHD data with local resolution (>1:24,000-scale) data. This will not be an in-depth training of tools used in the GeoConflation process, but a broad spectrum look at how the USGS process works and the level of effort required by users in order to run GeoConflation process. For those interested, the next GCT TEM meeting will be held on June 25th from 11:00AM to 12:30PM. Please visit the MyUSGS - Technical Exchange Meeting Information page

<https://my.usgs.gov/confluence/display/hdc/Technical+Exchange+Meeting+%28TEM%29+Information> for further details or contact David Anderson danderson@usgs.gov.

NHD Update Tool Status by Paul Kimsey

NHD Update tool v6.1.0 for ArcGIS 10.1 has been delivered internally for one last round of testing. The testing will begin May 27 and last two weeks. Barring any critical issues the tool will be officially released.

Development of NHD Update tool v6.2.0 for ArcGIS 10.2.1 began on May 22nd and will end on June 10th. This development will produce an internal only delivery for testing. The main focus will be on migrating to ArcGIS 10.2.1, Use of File geodatabase checkouts and introducing “Provisional Names” functionality. Introducing Provisional Names functionality will allow NHD editors to add new GNIS (GAZ) names while editing the NHD spatial data. The name proposals will be accepted for load into the

NHD operational database with a temporary ID. The names will then be reviewed at a later date and if accepted, the Provisional status will be dropped and the official GAZ Name and GAZ ID will be made available from the NHD distribution database. A follow up NHD Update tool v6.2 development sprint is planned in June/July time frame to complete the above mentioned goals and an official release will be provided after testing is completed.

Network Improvement Project Status by David Kraemer

The Initial phase (late 2011 NHD HUC-02 snapshot) of the Network Improvement project has four remaining sub-basins in the continental United States: 05120202 (Indiana); 08030202 and 08030207 (Mississippi); 04080300 (WBD). Once the partners check-in their jobs Network Improvement will edit these sub-basins. Region 19 is in work as part of preparing the Alaska Hydro Image Integration projects.

The Double Check phase (early 2014 NHD HUC-04 snapshot) is correcting any additional errors that would prevent the creation of the NHDPlus VAA. This past month Region 02 (Middle Atlantic) was completed for the Double Check phase. Region 06 has been run through NHDPlus QA/QC checks a third phase and is waiting for 06010105 to check-in to do additional edits before the NHDPlus VAA can be created. Currently in work for Double Check edits are Regions: 01, 03, 05, 09, 12, and 18. The additional rounds of running NHDPlus QA/QC checks and making Network Improvement edits is necessary due to network errors introduced into the NHD Geodatabase by NHD edits done in the time between Network Improvement completion and the creation of NHDPlus VAA.

Initial Network Improvement Regions Completed: 01, 02, 03, 06, 07, 09, 10, 11, 12, 13, 14, 15, 16, 17, 18, 20, 21, and 22.

Double Check Network Improvement Regions Completed: 02, 06, 07, and 20.

Program Coordinator for AK Hydro

Kacy Krieger is the Program Coordinator for the Alaska Hydrography Database, or AK Hydro. Kacy is the point of contact for AK Hydro and works closely with the Alaska Hydrography Technical Working Group (AHTWG) to develop and implement a cohesive, inclusive strategy for updating the National Hydrography Dataset in Alaska. Kacy received a M.S. in Geology from Idaho State University where he researched Arctic geomorphology and applications of LiDAR in changing environments. Prior to joining AK Hydro, Kacy worked as a geospatial technician and data manager with Alaska EPSCoR at the University of Alaska Anchorage.

The Network Value Added Attribute of the Month

Do you know your VAA's? This NHD Newsletter article is the fourth in a series to describe each of the Network Value Added Attributes. The flow network embedded in the NHD is what gives NHD its analytic power. The Network VAA's boost this power by pre-calculating a number of network characteristics to make network analysis richer and easier to exploit. This month will examine DnDrainCount.

Last month's article looked at DnMinorHyd, while the month before looked at DnHydroSeq. These identify the downstream minor path and mainstem path respectively. They are identified using HydroSeq, the hydrologic sequence number, as the identifier. HydroSeq was described in the February 2014 NHD Newsletter. DnDrainCount works with DnMinorHyd and DnHydroSeq. It simply identifies how many flowlines with flow are located immediately downstream of the current flowline. For example, if there was one mainpath and one minor path flowlines downstream, DnDrainCount = 2. If there was one mainpath, and two minor path flowlines, but one of the minor path flowlines had uninitialized flow,

DnDrainCount would still be = 2. If dndraincnt > 2, it means that there are additional outflows immediately downstream and identifying them requires a look at the flow table.

NHD Photo of the Month

This month's photo was submitted by Kitty Kolb from the USGS North Carolina Water Science Center. This photo was taken on the footbridge over Torrence Creek, in Huntersville, NC. The reach code is 03050101001997. See ftp://nhdftp.usgs.gov/Hydro_Images/MoonTorrence.JPG. Submit your photo for the NHD Photo of the Month by sending it to jdsimley@usgs.gov.

April Hydrography Quiz / New May Quiz

David Hockman-Wert was the first to guess the May NHD Quiz as the North Fork of the Stillaguamish River at the site of the recent massive landslide at Oso, Washington. See <ftp://nhdftp.usgs.gov/Quiz/Hydrography105.jpg>

David does GIS and data analysis work for the Aquatic Ecology Lab of the USGS Forest and Rangeland Ecosystem Science Center. The lab conducts research and provides technical assistance to address challenges to fresh waters. They study a wide range of ecosystems, from small streams to large rivers and major lake ecosystems in the Pacific Northwest and beyond. The work is organized into several major themes, including restoration, monitoring and evaluation, habitat relationships, invasive species, species life histories, ecosystem processes, and wildfire.

David has been using NHD and NHDPlus streams a lot lately to model stream habitat patches for T&E-listed trout (bull trout, Lahontan cutthroat trout). Since he works across multiple states (Oregon, Washington, Idaho, Montana, Nevada), having a solid, consistent stream layer is vital, and he's been pleased with the quality of the NHD. The extra attributes of the NHDPlus streams have been very useful, as has the national NHDPointEventFC layer of dams (NID) linked to high-resolution NHD streams.

Daniel Button, Al Rea, Laurie Morgan, Matt Rehwald, Gerry Daumiller, Steve Shivers, Jenn Crea, Rick Campbell, Janet Kellam, David Asbury, Tom Denslinger, Kitty Kolb, Stephanie, Kula, Jonathan Labie, Mark Sommer, John Kosovich, Andy LeBaron, Edwin Abbey, Dennis Dempsey, David Straub, Ken Koch, Ron Wencl, Steve Aichele, Roger Barlow, and Susanne Maeder.

This month's hydrography quiz can be found at <ftp://nhdftp.usgs.gov/Quiz/Hydrography106.jpg>. What's the name of this ocean sound? 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 David Anderson, Paul Kimsey, David Kraemer, Becci Anderson, and Cindy McKay.

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.