

USGS National Hydrography Dataset Newsletter
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by Jeff Simley, USGS

NHD Network Improvements - by David Kraemer

As of this month the NHD Network Improvements project has completed Hydrologic Regions 9, 16, and 18. Also the state of Minnesota asked for all sub-basins within their state to go through the network improvement project and this has also been completed. Region 17 is almost completed, with only three subbasins waiting for steward check-in before finishing. Now in work are regions 10, 11, 14, and 15. To see up-to-date status information go to: http://nhd.usgs.gov/project_status.html. To the right of the status map is background information about the Network Improvements project. Click on this text to see a pop-up of all of the checks performed during Network Improvements reviews/edits. Some of the checks performed and number of potential errors are as follows organized by hydrologic region:

	<u>R9</u>	<u>R16</u>	<u>R17</u>	<u>R18</u>	<u>R10</u>	<u>R11</u>	<u>R14</u>
Flowline Loops	137	288	267	789	32	83	17
Nonlinear Named Paths	25	95	228	294	447	139	238
Flowline Microgaps	34	176	33	2547	194	333	540
Duplicate Flowlines	34	0	2	14	435	117	2

The Network Improvements project is being completed from west to east across the United States. The team is working the regions from the headwaters downstream. Now in processing are the Missouri (Region 10) being worked by Charles Bowker, the Arkansas (Region 11) by Allen Karsh, and the Colorado (Regions 14/15) by David Kraemer. Due to file size constraints in final QC these regions are being worked as 5-6 subbasin (HUC-8) jobs in low density hydrography areas and 2-3 subbasin jobs in high density hydrography areas. The four regions should be nearing completion by the end of 2012. Regions 7, 12, and 13 will be started in early 2013.

Update on Indiana's Local-Resolution NHD Project - by David Nail

Extensive statewide flooding during 2008 caused 82 of 92 Indiana counties to receive the Presidential Disaster Declaration. In 2010, federal funds from the 2008 flooding became available for flood mitigation support and are being used by the state to acquire LiDAR elevation data (as a statewide program along with imagery) and to update the National Hydrography Data set.

In 2011, Indiana's Geographic Information Officer within the Office of Technology signed a contract with AECOM to create Local-Resolution NHD for 30 out of 38 Indiana subbasins. The Upper Eel (05120104), which is funded by the USGS and is nearing completion, will be the first subbasin that has been conflated with the 24K High-Res NHD and will be the first Indiana Local-Res subbasin available for public download. We anticipate that the Upper Eel will be distributed through the NHD website soon.

Eleven subbasins are now in various stages of Local-Res production by AECOM and the Indiana Geographic Information Council Waters Workgroup is responsible for reviewing these subbasins. Mike Martin, with the Indiana Department of Natural Resources and Chair of the Waters Workgroup, has developed an online internet web-mapping interface (Flex QC Tool) that provides the workgroup with an easy method for reviewing and documenting problems found during QA/QC.

In addition, Mike has developed a set of statistics comparing the 24K High-Res NHD to the Local-Res NHD for the number of Flowline miles, the number of acres in the area featureclass and the number of acres in the waterbody featureclass. Below is a summary for 7 Local-Res subbasins that have been completed.

Summary for Subbasins for which QC has been completed				
	HighRes	LocalRes	New Miles	% Increase
Flowline, Miles	8,361.489	42,615.831	34,254.342	409.668
Area, Acres	7,021.324	16,430.733	9,409.408	134.012
Waterbody, Acres	18,354.630	27,364.625	9,009.995	49.088

Kentucky Karst Project - by Jim Seay

In 2010, Kentucky Division of Water (KDOW) conducted a pilot project to determine the feasibility of integrating the Kentucky Karst Atlas, a GIS database of digitized karst dye traces, site locations and groundwater basins, into the NHD. Based on the results of the pilot project, KDOW entered into an agreement with the USGS to continue the project in FY 2012, using the Upper Green River subbasin (home of Mammoth Cave National Park) as the focus of the project. Despite the nearly four month editing moratorium on the NHD database (due to the upgrade of the NHD geodatabase to version 2.1), Kentucky Division of Water was successfully able to digitize the Karst Atlas features for the following NHD sub-basins:

- Upper Green (the target sub-basin for this year's project)
- Barren River
- Red River (the target of the 2010 NHD – KY Karst Atlas Pilot Project)

In addition to the sub-basins mentioned above, the digitizing of the published karst atlas dye traces has been completed in the Kentucky portion of the Lower Cumberland subbasin. This subbasin is being checked by the USGS Denver office, due to excessive numbers of issues encountered during the QC phase which were unrelated to this project.

The additional work was made possible despite the editing moratorium due to the release of version 4 of the NHD Geo Edit Toolset by the USGS application developers. This tool allows for greatly improved productivity. For example, the original NHD Edit tool (which was used for all edits before April 2012) only allowed a user to do one set of tasks at a time (i.e. deleting flowlines, then proceeding to edit a flowline, etc.). The new Geo Edit toolset allows a user to do multiple edit tasks on the same feature class before applying database rules and saving edits. In addition, the new tool uses a different QC process based on the ESRI PLTS extension. There was a bit of a learning curve with the QC tools, but they are quite thorough.

After consulting with geologist Rob Blair who has worked on both projects, it is estimated that anywhere from 40 – 50% of the KY Karst Atlas available to the public will have been digitized into the NHD upon the completion of QC fixes to the Lower Cumberland subbasin. The areas covered by the Kentucky Karst Atlas which remain to be digitized are:

- The southern (Kentucky) portion of the Blue- Sinking River sub-basin
- Lower Kentucky sub-basin
- Louisville area
- Somerset, KY /Lake Cumberland area (karst atlas dye traces were updated by Kentucky Geological Survey and KDOW this past year as part of the Somerset Karst Atlas map published by KGS)

U.S./Canadian Hydrographic Data Harmonization – by Karen Hanson

The Transboundary Hydrographic Data Harmonization Task Force convened in Ottawa, Canada during October 16-18, 2012. Representatives from the following agencies were in attendance: International Joint Commission, U.S. Geological Survey, Agriculture and Agri-Food Canada, Environment Canada, and

Natural Resources Canada. With both NHD and WBD 8-digit harmonization of shared subbasins along the U.S. and Canadian border being near completion, except for a few remaining Great Lakes, one of the major focuses of the meeting was on harmonization of the 10- and 12-digit hydrologic units. Efforts are already underway to finalize 10- and 12-digit linework and attribution for shared subbasins in the Columbia, Souris, and Rainy Basins. Workshops are planned over the next year to move this effort forward in other basins, such as the Red, St. Croix, St. John, Bay of Fundy, Champlain, St. Lawrence, Magog, Milk, Belly, St. Marys, and Muddy. Opportunities to carry StreamStats across the border were discussed with Canadian partners, including members from the Rainy and Lake of the Woods River Boards as well as modelers at Environment Canada. Initial steps toward bi-national stewardship of the harmonized data were outlined with the cooperation of data managers from Natural Resources Canada.

NHD Photo of the Month

This month's photo was submitted by Anne Wynn of the Geological Survey of Alabama and shows Caney Creek below Upper Caney Falls in Bankhead National Forest, Alabama. This photo was taken last month during a mussel survey with Anne's colleague, Stuart McGregor. To see the photo of the month go to ftp://nhdftp.usgs.gov/Hydro/Images/Upper_Caney_Falls.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.

September Hydrography Quiz / New October Quiz

Rich Stein was the first to guess the September NHD Quiz as Lake Tangipahoa on the Tangipahoa River just north of the Mississippi-Louisiana state line. See <ftp://nhdftp.usgs.gov/Quiz/Hydrography86.pdf>. Rich Stein works for the Branch of Dam Safety within the Bureau of Indian Affairs Division of Water and Power. The Branch is responsible for dam safety and security of 135 dams on reservation land primarily in the western part of the country. Rich manages a field crew charged with surveying and mapping the dams which provides input to flood inundation modeling software. The results of the modeling are used as part of the Emergency Action Plan for each dam.

Percy Quin dam impounds the 700 acre Lake Tangipahoa. Recent photos show sloughing and erosion on the downstream face, and the lake is currently closed to the public while the water level is drawn down to effect repairs. The Tangipahoa River eventually flows into Lake Pontchartrain.

Others with the correct answer (in order received) were: David Asbury, Kitty Kolb, Ellen D'Amico, David Straub, Evan Hammer, Greg Winters, Tom Denslinger, Edwin Abbey, Richard Patton, Ken Koch, Carl Chambers, and Rhonda Mathison.

This month's hydrography quiz can be found at <ftp://nhdftp.usgs.gov/Quiz/Hydrography87.pdf>. The ocean is light blue, the estuaries are dark blue, the rivers are medium blue. The salmon color is urban area, orange areas are ditches, blue lines are streams. Where is this? 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 Kraemer, David Nail, Jim Seay, Karen Hanson and Kathy Isham.

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

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