USGS National Hydrography Dataset Newsletter
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By Jeff Simley, USGS

NHD Stewardship Support Positions Advertised

Announcement Number: CR-2008-0543 (CR-JF-DEU); Title: Cartographer; Pay Plan, Series, and Grade: GS-1370-11/12; Number of Positions to be Filled: 3 or more; Promotion Potential: GS-12; Location of Position: Lakewood, CO and/or Rolla, MO; Work Schedule: Full-Time; Open Date: 4/29/08; Close Date: 05/12/08.

This position is located with the U.S. Geological Survey (USGS), National Geospatial Technical Operations Center (NGTOC) of the National Geospatial Programs Office (NGPO) in Lakewood, CO and Rolla, MO. The selectee of this position will be responsible for the following major duties: (1) Serves as a point of contact for geospatial data activities that provide capabilities to access, acquire, produce, archive, manage, and disseminate derived data and metadata in support of NGPO goals. (2) Prepares reports, briefs, presentations, and publications relating to program plans and accomplishments of the Center for dissemination throughout the data user community. (3) Leads and coordinates GIS projects that entail the development of new applications, procedures, and techniques to produce technically advanced presentations using spatial data, text line maps, and images pertaining the promotion and implementation of The National Map. (4) Serves as advisor to the supervisor, Center staff, and NGPO management.

If you are interested go to http://www.usajobs.gov/ and under SEARCH JOBS enter CR-2008-0543 and then click on SEARCH. Federal government employees should apply via the Merit Promotion process in OARS and look for announcement CR-2008-0544. To be sure you are applying using the correct process contact Carol Tresco at 303-236-9577 or email ctresco@usgs.gov.

High Precision Data

NHD data downloads are now available as version 9.2 high-precision personal geodatabase format. When downloading from the viewer, the user has the option of (1) personal geodatabase in 8.3, (2) personal geodatabase in 9.2, (3) file-based geodatabase, and (4) shapefile. Option 1 will be discontinued in the Fall of 2008.

Tennessee to Develop Statewide Local Resolution NHD

The State of Tennessee, Office for Information Resources, GIS Services group (OIR GIS Services) is creating a NHD Local Resolution Geodatabase for the entire state. This is one of a handful of state-wide "Local Res" NHD datasets in the nation and may serve as a model for other states to follow. The Tennessee Geographic Information (TGI) is managing the project for OIR GIS Services as part of a multi-year data creation program that includes orthophotos, roadwork, and parcels for the state's 95 counties, plus a target 300,000 linear mile hydrography dataset. The new local resolution NHD is being mapped at 1:1,200-scale and 1:4,800-scale, which will provide many more features, greatly improved currency and better positional accuracy. Tennessee decided to conflate the existing high resolution NHD onto a new

high accuracy hydrography dataset extracted from orthophotography. The result will take the best of the new hydrography along with the reach structure of the existing hydrography. An added benefit is that it will fully integrate with the State's new orthophotos and digital elevation models. State, federal, and local agencies will use the new local resolution NHD in hydrologic modeling, permitting, environmental analysis, site selection, transportation planning, emergency response planning and flood control applications.

Tennessee OIR GIS Services has established an advisory team of hydrography users representing a variety of state agencies, such as Environment & Conservation, Economic & Community Development, Wildlife Resources Agency, Transportation, Agriculture; federal agencies such as the USGS, and US Fish and Wildlife Service; as well as Knox County. They are advising on business rules and standards, and are providing quality control of the pilot dataset. Tennessee OIR GIS Services and the USGS are working with these agencies to identify a data steward and a team to maintain the local resolution NHD once initial production is complete and delivered to the State.

Tennessee is using Data Enhancement Services LLC (DES) to perform the conflation project starting with a three-county pilot project. DES specializes in conflation services and feature extraction. They will produce a set of business rules and production scenarios, and deliver a seamless NHD geodatabase for the State. TGI will provide project management and quality control. The pilot and business rules document is done and the first three counties of data are complete. Full production will begin shortly and is scheduled for completion in August 2008. Colleen Ditmars of DES can be contacted for more information cditmars@gisdes.com.

Maintenance Lite Map

The USGS is reviewing the high resolution NHD coverage of the country and making a series of edits known as Maintenance Lite. Lite refers to the practice of performing a limited set of edits rather than complete in-depth editing. This allows a complete a sweep of the nation to bring the entire dataset up to a particular standard by September 2008. Additional edits will be made in a second sweep of the nation to follow. The goal is to incrementally raise the quality of the NHD using a combination of USGS maintenance to fix basic problems and stewardship maintenance to enhance the NHD with local knowledge. Keep tabs on the progress of Maintenance Lite by going to the NHD Stewardship web site and clicking on Maintenance Lite or Revision Status Map http://webhosts.cr.usgs.gov/steward/index.html.

American Water Resources Association GIS in Water Resources Conference

The American Water Resources Association bi-annual conference on GIS in Water Resources was held in San Mateo, California March 17-19. The conference featured 230 papers. Here is a continuation from the March newsletter of a sampling of papers presented.

Networked-Based Analysis of Freshwater Ecosystems Using the FLoWS Tools – David Theobald talked about the enormous opportunities available with USGS datasets, but pointed out the lack of tools to go along with that data. The FLoWS tools work in ArcToolbox and combine vector and raster capabilities. Examples of working with 30-meter DEM's and 1:100,000-scale NHD, along with other datasets such as impervious surface and landscape wetness. NHDPlus can also be used. The tools allow the analysis of ecosystems from a stream network perspective. Analysis involve flow modification by dams, valley bottom ecosystems, land change stress, the effect of roads, distances from streams, and Coho salmon habitat.

Modeling Green Sturgeon Habitat in the Central Valley of California – Ethan Mora discussed the role of dams in habitat fragmentation of the Green Sturgeon. Fish sightings data is gathered and habitat conditions are recorded on flow, velocity, temperature, and slope. From this, it is possible to predict suitable habitat using these factors in the NHDPlus. Stream gages are also used to help understand flow conditions. The role of dams in affecting stream temperature is a major factor. Ethan pointed out that for this work the NHDPlus is "priceless."

Using GIS to Characterize Multiple Watersheds of Interest to Forest Products Industry Stakeholders – Doug McLaughlin presented on work conducted by the National Council for Air and Stream Improvement that looked at the effect of pulp and paper mill production on water quality. The central issue is to look at chemicals produced by the mills, primarily phosphorous, and how these affect designated uses of the waters downstream of the mills. Mills were located on the NHD network and downstream water uses were identified from EPA's Assessed Waters data. Factors such as the size of the downstream network and the flow on that network are important in understanding chemical concentrations. Google Earth was used extensively as a backdrop upon which the NHD, mills, pathogens, etc. were overlaid. This work is possible because of the extensive capabilities of GIS, and the availability of enabling data such as the NHD.

Indexing Water Rights Data to the National Hydrography Dataset – Fiona Renton spoke on the conversion of water rights data in California from hardcopy files to a GIS. Traditionally water rights were located on mylar maps using pasted-on dots for the place of diversion and the place of use, supported by index cards. 40,000 of these records are kept using 16,000 maps. Now a system called the Electronic Water Rights Information Management System is being implemented that will index these positions on the NHD with a table of data linked to the indexed positions. Noted among the many benefits of this system is the use of upstream/downstream navigation to relate water rights on the network. With this, all downstream water rights can easily be identified. This provides a better understanding of Appropriated Streams in which new water rights are not available at certain times due to water availability limits. The system is a major advancement in water rights management, and this work is a testimony to how small teams of dedicated people can transform government by leveraging technology.

New NHD Stewardship Staff Member

George Heleine has joined the NHD stewardship team and will specialize helping the mid-Atlantic states of New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, and North Carolina. George began his career in 1987 with the USGS in Rolla, MO. In 1997 he began work in data integration and later was assigned to the USGS high resolution National Hydrography Dataset program. George is also the point-of-contact for the NHDGeoConflationTool (NHDGCT) where he prepares curricula and conducts workshops on applying the tool. He provides technical leadership and facilitates collaboration between National Geospatial Technical Operations Center and partners on pilot projects for NHDGCT. He has also developed expertise in the NHDGeoEdit tool used to maintain the NHD, providing training and support to states and partners on applying the tool. You can contact George at gheleine@usgs.gov.

March Hydrography Quiz / New April Quiz

Chris Markuson, a GIS Manager for Pueblo County, Colorado was the first to correctly guess last month's hydrography quiz ftp://nhdftp.usgs.gov/Quiz/Hydrography33.pdf as the border of Oklahoma and

Texas along the Red River. The larger reservoir to the left is Hugo Lake in Choctaw County, Texas. The smaller reservoir to the right is Pine Creek Lake in McCurtain County, Texas. The movie mentioned is the classic "Red River."

Others with the correct answer were (in order received) Al Rea, Ken Koch, Lee Galt, Jim Sherwood, Richard Patton, Bill Samuels, Jim McDonald, David Straub, Allen Karsh, Thom DeGriselles, David Asbury, Pat Fowler, and Kirk Kuykendall.

Lee Galt from L-3 Communications says: "The Ouachita Mountains are distinct in that they are fold mountains like the Appalachian Mountains to the east and typical mountain processes are absent throughout its system like volcanism, metamorphism and intrusions when compared to most mountain ranges in The States. Unlike most mountains in the United States the Ouachitas run east and west rather than north and south". David Asbury notes: "The main waterbody, the reservoir itself, is labeled as "South Lake" (GNIS ID 1098260) in the NHD. This is incorrect as the reservoir is named Hugo Reservoir. The reservoir to the west is primarily "inundation area" which makes its shape look quite different on the PDF than on topographic maps or aerial photos… I'm interested in the geology that created so many differing drainage patterns in such close proximity to one another. I thought that trellis patterns were typically associated with faults and annular patterns were associated with volcanic or salt dome intrusions. But, not being a geologist, I wasn't able to interpret the geologic maps I found of the region. I also found the Wikipedia entry below that states the "Ouachitas are distinctive in that volcanism, metamorphism, and intrusions are notably absent throughout most of the system"".

This month's hydrography quiz can be found at ftp://nhdftp.usgs.gov/Quiz/Hydrography34.pdf. Where is this?

Upcoming NHD Geo Edit Tool Training

June 18-20, Little Rock, AR, Contact Tim Hines thines@usgs.gov or Katy Hattenhauer hattenhauer@adeq.state.ar.us

Upcoming NHD Applications Training

May 7, Dearborn, Michigan, contact Steve Aichele at saichele@usgs.gov
May 8, Lansing, Michigan, contact Steve Aichele
June 4, Ottawa, Ontario, GeoTech Event 2008, see http://www.geoplace.com/ME2/Default.asp
Sept. 16-17, Portland, Oregon, contact Sheri Schneider at sschneid@usgs.gov
Sept. 18, Lacey, Washington, contact Allyson Jason at ajason@usgs.gov
Oct. 21, Laramie, Wyoming, SouthWest User's Group, contact Paul Caffrey at Caffrey@uwyo.edu
October, Boise, Idaho, contact Scott Van Hoff at svanhoff@usgs.gov
California is in planning stages, contact Carol Ostergren at costergren@usgs.gov

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Thanks to Paul Kimsey, George Heleine, Jerry Ornelas, Colleen Ditmars, and Terry Higgins.
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.