

USGS National Hydrography Dataset Newsletter  
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### **Urban Area High Resolution NHD**

The U.S. Geological Survey has an important role in homeland security as a result of its long history of describing and recording the geography of the Nation. One objective in homeland security is to provide mapping information for the Nation's urban areas and one component of this is hydrography. 133 urban areas with a total population of 160-million people have been identified for an expedited mapping effort. These urban areas intersect with 508 subbasins. Of these, 146 have completed high-resolution coverage with an additional 148 currently programmed for coverage. Of the remaining 214, 25 have the potential of being completed under existing partnerships. This leaves 189 to be completed either entirely with USGS funds or through new partnerships. In an upcoming Newsletter we will outline plans for completing this effort.

### **Geodatabase Review**

You are probably aware that the existing NHD model is a very powerful form of geospatial data and has been a leading edge GIS dataset for some time. But now, a new generation of data modeling is available in the form of geodatabase, and the NHD is again pushing the envelope to keep its users on the leading edge by using this advanced concept. The basic NHD geodatabase model has been defined, and you can examine it by downloading the sample dataset `nhd_geo/sample_data/NG_Feb12.zip` from [rockyweb.cr.usgs.gov](http://rockyweb.cr.usgs.gov) (login = anonymous, password = your e-mail address). Then open the file using ArcMap in ArcGIS. A novice should have no trouble doing this and experts will be pleased at the simplicity of design. Be aware that this is a sample under development and not in its final form. Use it only for general review. Address questions to [nhd@usgs.gov](mailto:nhd@usgs.gov) and be sure to mention geodatabase in the subject line.

The logical question is - when will the final design be defined and when can I get the NHD in geodatabase? The answer - this summer. Currently, the bugs are being worked out of the conversion of the existing NHD to the NHD in geodatabase. The conversion process is fairly straightforward, but it must be rigorously tested and stressed to reveal problems. This will assure that data integrity is not lost. Any problems must be solved and a new series of tests undertaken so that the final conversion runs smoothly. The final nation-wide conversion will take a number of weeks, largely because certain enhancements are being made to the data as it is converted. The issue is not simply the conversion, but how well the NHD in geodatabase will behave in an operating environment where data is being loaded, downloaded, and viewed a couple hundred thousand times a day. The NHD must not only meet the needs of the traditional hydrography community, but the NHD is also a critical component of *The National Map*, and will be accessed through this process at a rate orders of magnitude greater than as a stand-alone dataset. Additionally, the NHD will need to be thoroughly compatible with other data systems, requiring further testing.

In addition to accessing the NHD through *The National Map*, users will be able to access the NHD in a stand-alone fashion using ArcIMS. In another month or so, you will have access to this capability on a trial basis and have the opportunity to offer suggestions. Look for access information in an upcoming NHD Newsletter. Using this capability, users will be able to review the NHD in conjunction with reference layers such as shaded terrain, roads, state/county/federal land/congressional district boundaries, city/town locations, and hydrologic unit boundaries - initially fourth level subbasins, but eventually sixth level subwatersheds. Using this view, the NHD can be extracted for use using the above defining

polygons, or custom polygons. Eventually, other criteria will be available, such as feature level metadata dates or water feature names.

The user can then download the NHD using (1) personal geodatabase, (2) traditional Arc coverage - through FTP, (3) shapefile - also through FTP, (4) SDE geodatabase - under consideration, (5) SDTS - by request, and (6) XML. The later two provide non-proprietary format capability. XML will not be available initially. It is expected that the personal geodatabase option will become the more common form until XML is provided. The personal geodatabase will have a pre-established network, some update restrictions to aide data integrity, feature level metadata, m-values for addressing, and unpopulated z-value (elevation) capability. Typically, a geodatabase should be no larger than 2 gigabytes. In addition to the ArcIMS access, the NHD will be available from a non-proprietary Web Mapping Service, traditional FTP, and will be fully integrated with methods used by *The National Map*.

The result of all of this work means that the NHD will provide greater flexibility, reliability, accessibility, applications, transaction volume, and serve to strengthen the concepts of *The National Map*.

### **Upcoming Workshops on How to Use the NHD – With Emphasis on High Resolution NHD**

April 7, Coeur d' Alene, Idaho – This half-day NHD workshop is co-sponsored by The Northern Rockies Chapter of URISA and the Montana GIS Users Group in conjunction with the 2003 Intermountain GIS Conference. Instructor – Catherine Love.

April 8, Bloomington, Illinois – This full-day NHD workshop is sponsored by the GIS in Illinois conference. Instructor – Keven Roth.

April 24, Los Alamos, New Mexico – This all-day workshop is sponsored by the New Mexico Geographic Information Committee as part of their annual meeting, with this year's theme on water resources.

May 16, Denver, Colorado – This all-day NHD workshop will be the third day of a three-day GIS workshop sponsored by the USGS. Instructor – Jeff Simley

May 20, Denver Colorado – This all-day NHD workshop is cosponsored by GIS Colorado and the USGS. Instructor – Jeff Simley

June 5, Salt Lake City, Utah – This all-day NHD workshop is sponsored by the Utah Automated Geographic Reference Center. Instructor – Jeff Simley

### **Recent Completions**

Initial Carson-Cibola (NM) project – 9 subbasins - another 19 subbasins needed to complete the remainder of the Forest. Initial Gallatin/Helena (MT-WY) project – 5 subbasins – another 3 are in-work to complete Forest. Ashely NF (UT-WY) – 9 subbasins. Tuskegee/Conechuh NF (AL) – 3 subbasins.

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Thanks to Paul Wiese.

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