USGS National Hydrography Dataset Newsletter
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The National Hydrography Dataset in New Mexico

The collection of the National Hydrography Dataset (NHD) high-resolution data in New Mexico is in full swing thanks to funding from the Department of Interior High Priority Lands Program within the USGS and the Natural Resource Information System (NRIS) Water program at the U.S. Forest Service. Those remaining subbasins not currently scheduled in the State could possibly be authorized for production in FY2003 if initial funding plans remain in place. The New Mexico GIS community saw the benefit of having a fully networked hydrography database statewide and was proactive in securing funding for the NHD. This effort was launched in the Fall of 2000 through the New Mexico DOI High Priority Program Committee, which voted to begin the production of NHD over designated priority areas within the state. The DOI High Priority Program for FY2003 has made a preliminary plan to allocate $673,200 to continue the collection of NHD subbasins in New Mexico. The NHD program in New Mexico has been a cooperative effort between DOI Bureaus and the U.S. Forest Service. The NHD uses USGS Digital Line Graphs and Tagged Vector Hydrography outside of Forest Service lands and USFS Cartographic Feature Files combined with local Forest data within Forest Service lands. The USGS mapping liaison for New Mexico has coordinated efforts with the Region 3 Forest Service office in Albuquerque to utilize the most recently updated local hydrography vector data available over the National Forest lands in New Mexico. This data, referred to as “core data”, replaces older vector data within the Region 3 Forests. It is being used as source data, where applicable, for both the USGS DOI Lands production and the U.S. Forest Service program. To date, the Forest Service has contracted for production of nine subbasins covering priority Forest lands in the state. The DOI High Priority program to date has contracted for production an additional 25 subbasins that are in various stages of completion. Planning will soon begin to complete NHD for the state using FY2003 DOI funds and through the coordination of funding with the US/Mexico Border Program and the State of Texas. Cooperative funding between New Mexico and Texas will be used to produce subbasins that cross these state borders.

NHD Tools

The NHD is a very powerful dataset, but to give it that power it is somewhat complex and thus could be difficult to use. Fortunately, several tools are currently available on the NHD website to make that complexity transparent to the user and to make the data relatively easy to work with. The NHD Tools help the user to understand and use the data. To help you understand and use the Tools, here is a brief review: (I) During the decompression process, some PC software removes the empty files (0 bytes in size) that legitimately exist in some NHDinARC subbasin workspaces. This presents problems for tools and applications, such as Append_NHD, that work with multiple subbasins and expects that each NHD workspace contains the same set of tables. A set of PC-compatible compression tools is provided that properly retain these tables. Note that Winzip 8+ also retains the empty tables during decompression. (II) NHDinARC data are currently delivered in workspaces encompassing subbasin areas. Append_NHD is used to combine multiple NHD workspaces into a single workspace covering a larger geographic area, while ensuring the integrity of the data. (III) Another tool available on the website is the NHD ArcView Toolkit which is a collection of ArcView extensions. Toolkit components are designed to be easily incorporated into user-developed, ArcView-based NHD applications. Currently, the Toolkit contains: (1) NHD Load/Unload Workspace, which loads, symbolizes and displays the themes and tables in one or more NHD workspaces, (2) NHD Navigate which supports the upstream and downstream navigation of the drainage network, (3) NHD Reach Indexing Tool which provides an interactive environment for creating point, line and area events linked to NHD reaches, and (4) NHD Arc2Shape, which converts NHDinARC workspaces (coverage format) into NHDinSHP workspaces (shapefile format). Additional

components of the Toolkit are (5) NHD Edit, which will provide some basic NHD updating functionality and is available on request, and a planned component, (6) NHD Migrate, which will help users update events linked to the NHD as the NHD changes.

NHD Watershed Tool

NHD Watershed is an ArcView (3.x) extension that enables users to delineate a watershed from any point on any NHD reach in a fast, accurate, and reliable manner. The application works in 8-digit subbasins where appropriate supporting data layers have been collected and preprocessed. NHD Watershed was developed using the NHD ArcView Toolkit. NHD Watershed is currently being used in the State of Vermont for a Flood Frequency study. There are also plans to use the preprocessing steps (see step 1C under the 'Downloading and Instructions' section of the website) for a National Stream Statistics study being conducted by the USGS. For more information on NHD Watershed go to the NHD website http://nhd.usgs.gov, and under the 'Applications' section, select 'NHD Watershed'.

1:24,000-Scale Source Information

An Arc shapefile is available to research 1:24,000-scale hydrography source data for the NHD. This file is up-to-date and covers all 65,000 quadrangles, which will be used for input to the NHD. The file can be obtained from: **rockyweb.cr.usgs.gov or 136.177.111.5, login in as anonymous, password is your email address, cd to fs_nhd.** (Some people have trouble using the rockyweb address and the IP numbers work better - others have trouble with the IP numbers and the address works. So, please try both.) The file is called **us7 sept 2002.** There are 5 files for the shape file - please be sure to get all 5. The last column in the dBase file "quad status" contains the 24K source data availability.

Recent Completions

The Rocky Mountain Mapping Center has completed the “Southern California” project consisting of 33 subbasins. This project was produced in partnership with the U.S. Forest Service Region 5 and provides complete high resolution NHD coverage for the Angeles, Cleveland, Los Padres, San Bernardino and Sequoia National Forests and partial coverage for the Inyo and Sierra National Forests. Two problems contributed to delays to this project, which should be noted for future work. One was the extensive use of Provisional 7.5-minute series maps in which the density of the hydrography was unusually high. Second, was the very large geographic size of some of the subbasins. These two problems combined created files that were larger than the NHD software was designed to handle, necessitating the development of new solutions. The Rocky Mountain Mapping Center also completed the Bridger-Teton National Forest.

New Projects

A number of new projects have been started. The Mid-Continent Mapping Center has awarded the Ouachita, Kisatchie, and Tuskegee National Forest projects to contractors on the Cartographic Services Contract II. These are scheduled to be delivered in the February-March timeframe. The Rocky Mountain Mapping Center has started work on the Bighorn, San Juan, White River, and Grand Mesa-Uncompahgre-Gunnison (GMUG) National Forest projects. The U.S. Forest Service has awarded the Nicolet-Chequamegon National Forest project and three projects in Northern California covering a number of Forests to its contractor. The State of Texas has awarded several projects to its contractor.

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