

USGS National Hydrography Dataset Newsletter  
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### **The Mid-Continent Mapping Center**

The U.S. Geological Survey produces the National Hydrography Dataset (NHD) through a large number of partners and at three in-house locations. One of these in-house locations is the Mid-Continent Mapping Center (MCMC) located in Rolla, Missouri. The MCMC has 27 government employees and 2 contractors assigned to the NHD working in production, technical support, training, contract validation, software development and maintenance, and NHD web page management. The Center was a major producer in the effort to provide nation-wide coverage of the medium-resolution NHD. Currently, the MCMC is heavily involved in supporting partnerships for high-resolution production and works closely with industry, the U.S. Forest Service, and various state agencies in Georgia, Idaho, Kansas, Kentucky, Missouri, Maine, Minnesota, Michigan, Nebraska, New Hampshire, New York, North Carolina, Ohio, West Virginia, Vermont, and Wyoming. The USGS Cartographic Services Contract, used for contracting the production of the NHD, is managed by the MCMC and thus the Center is an important interface between the government and industry. The Center also works with industry as the technical advisor, quality assurance provider, and database loader for the USFS NHD production contract. This responsibility extends to the various independent producers, largely state agencies, who rely on the Center's expertise. Thus far, the MCMC has loaded 268 high-resolution subbasins in the Feature Operational Database, including complete coverage for eight National Forests. The Center has also produce 875 Tagged Vector-Hydrography files and converted 614 USFS files used as source data for the NHD. The MCMC plays a significant role in the development of software for the NHD program, producing the NHD Create software package used by a wide range of partners in the production of the NHD. The MCMC staff continues to refine this tool to keep pace with evolving demands of users. The translator software used to convert various source data from the USFS and other agencies is also produced and maintained in Rolla. The staff also is working on the development of the Geodatabase for the NHD. After building the high resolution NHD, the Mid-Continent Mapping Center staff will have a significant role as a coordinator of stewardship programs for the continuous maintenance of the NHD.

### **The National Hydrography Dataset in Idaho**

Several organizations within Idaho have formed a technical working group (TWG) to address hydrography issues within the state. Participants include representatives from the Idaho Department of Water Resources, Idaho Department of Lands, Idaho Department of Environmental Quality, the Bureau of Land Management, the U.S. Forest Service, the U.S. Geological Survey, and the Natural Resources Conservation Service. Sixty of the 85 subbasins in Idaho are now available as high resolution NHD datasets. This is a result of programs funded by the U.S. Forest Service. The state has tentatively adopted the NHD and the LLID (Latitude/Longitude identifier) models as dual state standards. Many agencies still have data linked to the LLID model, and the official hydrography standard for Oregon and Washington is based on the LLID. It may be necessary to develop a crosswalk between the two. The TWG is generating a potential data steward list asking for input from all primary landholders and land managers within each hydrologic unit. Each hydrologic unit may have several possible stewards including county assessors, irrigation districts, tribes and BLM district offices as well as state and federal agencies. Changes and updates to the NHD would then be submitted to the Idaho Department of Water Resources for review by the TWG. Water Resources would then forward the changes to the NHD. Value added information, not currently held within the NHD environment, such as LLID, would be kept as related tables and may be served by IDWR and Inside Idaho. Links to the NHD dataset as well as NHD in projections other than geographic may be available through IDWR and Inside Idaho.

## **NHD Applications – New England SPARROW Model**

The USGS, in cooperation with the USEPA, is developing a water-quality model, called SPARROW (*Spatially Referenced Regressions on Watershed Attributes*), to assist in the development of regional nutrient water-quality criteria and total maximum daily loads (TMDL) for streams in New England. SPARROW is a spatially detailed, statistical model that relates concentrations of phosphorus and nitrogen (nutrients) in streams to pollution sources and watershed characteristics. The SPARROW model for New England will refine a national model developed by the USGS in the early 1990s. The model provides estimates of nutrient concentrations, yields, and transport in watersheds. The New England SPARROW model is the first SPARROW model built upon the 1:100,000-scale National Hydrography Dataset (NHD). There are 42,000 NHD stream reaches and associated watersheds in the model. The NHD watersheds average less than 2 square miles in size and were generated using the National Elevation Database (NED) and Natural Resources Conservation Service watershed boundary data. The New England SPARROW model will provide estimates of the amount of in-stream nutrients based on data pertaining to point and non-point contaminant sources and watershed characteristics such as slope, streamflow, stream density, percent wetlands, and land use. Information about point sources will be derived from databases such as the USEPA's Permit Compliance System; information about nonpoint sources will be derived from data such as fertilizer use, livestock wastes, and atmospheric deposition.

The New England SPARROW model will provide estimates of phosphorus and nitrogen concentrations and yields, sources, and downstream movement of nutrients by watershed. This information will be used to (1) understand ranges in nutrient levels in surface waters, (2) identify the environmental factors that affect nutrient levels in streams, (3) define the variation of nutrient level by ecoregion, watershed, and other environmental settings, and (4) evaluate management options for reducing nutrient loads to achieve water-quality goals. <http://nh.water.usgs.gov/WhatsNew/newsletters/2001Newsletter/nutrientmodel.htm>

## **Recent Completions**

(1) Idaho Panhandle project. (2) Beaverhead/Deerlodge-Bitterroot NF. (3) Wayne NF. (4) Salmon for Nez Perce project. (5) San Francisco Estuary Institute I project.

## **DOI High Priority Lands**

Preliminary plans had been made to fund the production of up to 45 subbasins in FY2003 using funds made available from a USGS program to support the geospatial data priorities from other Department of Interior bureaus. These plans have been canceled so that the funding can be shifted to support homeland security programs.

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Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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