Water over the Bridge and Other Challenges of NHD Stewardship

Ohio GIS 2015
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Outline

National - Charley

NHD overview, history, status

State – David

County - Bill

National Hydrography Dataset
National Hydrography Dataset

NHD is a digital basemap of surface waters, such as streams, rivers, lakes, and reservoirs.

Includes names. Watershed boundaries.

Supports network and flow analysis.

Common framework for referencing surface-water related features, such as stream gages, pollution sources, and water quality test sites.

Maintained via stewardship.
History, Status, Future

- Topo maps, DLG, RF3, WBD
- 100K, 24K, local resolution
- Expanded stewardship
- Lidar, other themes, NHD Plus
- HRBS hydro study, update model
What is NHD? Who is involved?

- Common shared basemap
- Vector dataset
- National standards
- Lakes, ponds, streams, rivers, canals
- Network
- For mapping and modelling
- Linear referencing
- Maintained locally through stewardship
- Lots of partners, some active stewards
- Coordinated with WBD

EPA
NRCS Natural Resources Conservation Service
FEMA
Name that creek yourself and get feds to back you
Friday, December 02, 2005

Wonder if that creek behind your house has a name? You can check the topographic map for your neighborhood. They are probably available at the nearest library or town hall.

If it doesn’t have a name, or you think the one on the map is inappropriate, you can come up with a moniker and ask the U.S. Board of Geographic Names to make it official.

The board says any American has the right to propose a new name or a change. It has one hard and fast rule: No names of living people. And it might help your cause to get some backing from the county commissioners, township, village or city.

An application is available through the Internet at geonames.usgs.gov, where you can reach the board’s Web site.

If you don’t have Internet access, here’s the address:

U.S. Board on Geographic Names, U.S. Geological Survey, 12201 Sunrise Valley Drive, MS523, Reston, Va. 20192-5233
The National Hydrography Dataset (NHD) and Watershed Boundary Dataset (WBD) are used to portray surface water on The National Map. The NHD represents the drainage network with features such as rivers, streams, canals, lakes, ponds, coastline, dams, and streamgages. The WBD represents drainage basins as enclosed areas in eight different size categories. Both datasets represent the real world at a nominal scale of 1:24,000-scale, which means that one inch of The National Map data equals 2,000 feet on the ground. To maintain mapping clarity not all water features are represented and those that are use a moderate level of detail.

The NHD and WBD are digital vector datasets used by geographic information systems (GIS). These data are designed to be used in general mapping and in the analysis of surface water systems. In order to make a map these data must be used by a GIS to render the data and then print a map or make an image. The NHD is portrayed on the US Topo map product produced by the USGS and the NHD and WBD can be viewed on the Hydrography Viewer or the general mapping oriented The National Map Viewer.

In mapping, the NHD and WBD are used with other data themes such as elevation, boundaries, transportation, and structures to produce general reference maps. The NHD and WBD are often used by scientists using GIS. GIS technologies take advantage of a rich set of attributes imbedded in the data to generate specialized information.
A Vision for Ohio Stewardship

USGS

OGRIP Sponsored Stewardship Program
Steering Committee
(Chair is an OGRIP Council Member or Designee)

Sub-Steward

Sub-Steward

Sub-Steward

Memorandum of Understanding

OGRIP – Ohio Geographically Referenced Information Program

9/23/2015
Ohio NHD Steering Committee

Chaired by OGRIP Council or their designee

Responsibilities:

• Identify maintenance goals
• Recruit sub-stewards
• Provide guidance and technical support
• Report on submittal decisions
• Provide a publicly accessible forum for input on NHD maintenance

OGRIP – Ohio Geographically Referenced Information Program

9/23/2015
Stewardship Goals for Ohio

- Balance best available local hydrographic data with consistent positional accuracy and level of detail statewide
- Local and regional governments participate in creating and maintaining an accurate and current hydrographic dataset
- Provide hydrographic data product(s) that meet or exceed the business needs of Ohio and national hydrographic data users
For the selected Mission Critical Activity is it more important for hydrographic data to have the best available level of detail or is it more important to have a consistent level of detail?

Best available – the quality and detail may vary
Consistent – quality and detail will be the same, but better data for some areas may be available from other sources

*Preliminary results for Ohio respondents only*

9/23/2015
Ohio Responses to USGS HBRS
Positional Accuracy Required

“For the Mission Critical Activity that you selected, what positional accuracy is required for geographic features in the hydrography data?“

Preliminary Summary of Ohio responses to the National Hydrography Requirements and Benefits Study (HRBS)

9/23/2015
Existing Content

- Two stream layers
  - First is too high-level
    - Good for county engineer’s public map
    - Not so good for Stormwater use

- The other...
Local Needs

- What we wanted
  - Geometric Network
  - Simple lines
  - Meaningful sub-types
  - Consistent methodology
  - End-to-end connectivity
  - Rich metadata and attribution
Why was the NHD Appealing?

- Strongly controlled editing
- A “Goldilocks” stream density
- An authoritative umbrella
- Collaboration built into its DNA
Strongly Controlled Editing

- “Proprietary” Tool
  - USGS writes and maintains its own NHD editing tool
- Methodology is enforced by the tool
- Metadata is enforced by the tool
The NHD Editing Tool

- Written by USGS
- Limited use of
  - Data Reviewer
  - Production Mapping
- Kept “current – 1”
  - Now on v10.2
Example: Modify Geometry

- Constrained process
  - Limits non-standard methodologies
  - Ensures each step is properly closed out
  - Full edit history preserved
Attributes, not just Blue Lines

- Reachcode
- Perm_ID
- GNIS_Name
- Sub-type
Exhaustive QC Process

- Feature checks
- Geometry checks
- Network checks
- Rule checks
- More checks
Extensive Help

- Every tool has a help page
- Most pages show detailed step-by-step instructions
- Help up through the chain
- Very knowledgable “PoC”’s
- Monthly “Technical Exchange” calls
For best results when dealing with large editing jobs, it is suggested that the user increase their machine’s virtual memory. From the Windows Desktop, press the Start button and in the "Search Programs and Files" box enter "sysdm.cpl", and then press the Sysdm.cpl link that appears.

Step 8
In the System Properties window choose the Advanced tab, and then under the Performance section press the Settings button.

You must be logged on as an Administrator to make most of these changes.

- Performance
  - Visual effects, processor scheduling, memory usage, and virtual memory

- User Profiles
  - Desktop settings related to your login

- Startup and Recovery
  - System startup, system failure, and debugging information
The Stewardship Web Page
http://nhd.usgs.gov

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