USGS National Hydrography Dataset Newsletter
Vol. 10, No. 12, October, 2011
by Jeff Simley, USGS

**NHD/WBD Stewardship Conference –Call for Presentations**

The upcoming NHD/WBD Stewardship Conference, March 29-30, 2012, (see the September NHD Newsletter) is soliciting for presentations. Please submit an abstract in an email to Jeff Simley, jdsimley@usgs.gov with the subject "Stewardship Conference" by January 23, 2012. The goal of the conference is to address issues specific to NHD and WBD stewardship. All proposals on this subject are welcome. Possible travel assistance will be based on selected proposals. The conference will consist of individual presentations, panel discussions, open forums, and demonstrations.

Stewards who have received assistance grants from the USGS are particularly encouraged to present on the progress or results of their projects. Additional subjects encouraged include: (1) Challenges to stewardship and corresponding solutions (2) How stewardship helps, (3) Editing tool requirements, (4) Use of LiDAR, (5) Linear Referencing and the HEM tool, (6) NHD/WBD integration, (7) Coastal mapping, and (8) Conflation.

**NHD User Guide and Seminar Videos** by Kathy Isham and Kristiana Elite

The NHD User Guide has been greatly enhanced. Highlights include Interactive Tutorials and a Feature Catalog to guide users through every step when using NHD Data. The User Guide can be found at http://nhd.usgs.gov/userGuide/Robohelpfiles/index.htm. The User Guide currently has two tutorials available. The first tutorials provide step-by-step instructions on (1) downloading a dynamic extract and (2) downloading a prestaged Subregion using the NHD Viewer. Since publishing these first two tutorials there have been over 700 hits on the User Guide indicating a strong user interest. Other tutorials planned include: (1) Navigating the NHD Viewer, (2) Downloading a Prestaged Subregion, and (3) Downloading a State Extract. Additionally, tutorials will be created on Using NHD Data in ArcMap. Accompanying these tutorials will be video demos catering towards learners who prefer to observe tasks through a demonstration. Over time, the NHD User Guide will provide users with everything they need to know about the NHD from understanding what a NHDPoint feature type Rock is to understanding how to use GIS to perform complex network navigation.

Also included in the NHD User Guide is a new version of the NHD Feature Catalog. This Web Help has combined all information from the Feature Catalog, the FCode table, and the data dictionary. Data dictionaries may be found at the feature class level in the Table of Contents. Users may also use the search function to look for features, FCodes, and more. Coming soon to the NHD Feature Catalog: NHD Event information, Feature Delineation and Capture Condition rules, and much more!

One example of the NHD User Guide's content is the NHD Seminar Series. These videos provide a detailed look at the NHD and address a number of different areas such as how to download and understand NHD data, finding events on the network, understanding drainage systems in the NHD, maintenance of the NHD, and number of other topics. The audience for this video series is intended for users at all levels. The novice user will benefit from the overview of the NHD and learn about the feature classes that make up the NHD and WBD, while the more moderate to advanced users can learn about linear referencing in the NHD and the Hydrography Event Management Tools. The NHD Seminar Videos can be accessed from the NHD website at http://nhd.usgs.gov/videos_demos.html. They can also be accessed from YouTube (www.youtube.com) by performing a search on "National Hydrography Dataset".

**Linear Referencing and the Hydrography Event Management Tool** by Ariel Doumbouya

Here is an update of the major accomplishments made with the Hydrography Event Management (HEM) tools in the past year at USGS and some upcoming opportunities. The HEM tools now have users in 33 states. There have been nine WebEx trainings in the last year and an additional five custom trainings for specific agency needs. There are now 190 members of the HEM_Tools myUSGS community. The USGS is regularly using the HEM Tools to add NHDPointEventFC features to the NHD. Currently the USGS is adding major diversions and will incorporate smaller ones in the future. Work is also underway to reference approximately 131,000 NWIS stream gages and water quality stations. These should be updated this fiscal year (ending Sept. 30, 2012). The USGS is also using the HEM Tools to reference coastline geomorphology types to the NHD Coastline. The USGS is also developing a web application for its Water Science Centers to review and update NWIS locations based on the HEM code. The USGS is creating a mobile application for a fish barriers dataset, which may use the HEM tools to linear reference these points. Additionally the U.S. Fish and Wildlife Service is developing a new web application for fish barriers to replace the current one (more information is on the NHD Application webpage) and would allow national users to model the removal or addition of fish barriers, find the length of stream, and fish species that would be affected, all using the NHD network and HEM Tools functionality.

A HEM presentation was made to the National Map Users Conference held in April, 2011. The presentation was recorded and is available on a temporary website at http://usgs-mrs.cr.usgs.gov/NHDHelp/VideoDemos/SeminarVideos/Index.html (this may be an internal site, but this will be available to the public soon). Information on event types has been incorporated into the HEM Tools User Guide and will also be available on the NHD website soon. Plans are under way to hold a linear referencing workshop at the upcoming AWRA Spring Specialty Conference where participants will learn how to create point events with the HEM Tools and then import those events into StreamStats to delineate watersheds and perform other hydrologic analysis. Work is in progress to create three HEM tutorial videos this year. The first video, on installing the HEM Tools is already completed and is available as part of the new HEM release. None of this would be possible without the support and hardwork of the BLM.

Here is a partial list of Hydrography Event Management tool users: USF&WS, California Fish and Game, BLM, Idaho-DNR, Idaho-DWR, USGS, Washington Dept. of Ecology, USDA, various state counties, New Jersey DEP, USFS-Multiple regions, Hawaii Dept. of Health, Indiana Dept. of Environmental Management, Florida DEP, Minnesota Pollution Control Agency, New Hampshire, Dept. of Environmental Services, Gila National Forest, private companies, Denver Water, Mt Hood National Forest, Iowa DNR, Colorado Division of Water Resources, State of Missouri, Pacific States Marine Fisheries, Oklahoma Water Resources Board, Missouri DNR, West Virginia DEP, Alaska Dept. of Environmental Conservation, State of Maine, California Dept. of Forestry and Fire, Eldorado National Forest, New York DEC, State of Nebraska, California State Parks, National Park Service, California Water Resources Control Board, and USEPA.

**Adding Water Quality Stations to the NHD** by Michael Tinker

Earlier this year the USGS received 131,902 new points from the National Water Information System (NWIS) to index to the NHD. These points are locations of water quality stations and streamgages. About three quarters of the stations serve as both water quality stations and as streamgages, while the remaining quarter are just gaging stations. Since August the USGS has been adding these sites as NHDPointEventFC point events to the NHDFlowline network. The new point events link to water quality and stream gage information contained in the National Water Information System. The information available at NWIS depends on the site, but can include such metrics as flow, velocity, lake

levels, dissolved oxygen, pH, temperature, or total dissolved solids. Many water quality stations have years worth of data. To date, 8,150 NWIS points, or about 6% of the total NWIS snapshot, has been examined. All NWIS points will be examined over the next year. About 28% of the new point events added are water quality stations. Hydrologic regions which now contain water quality stations are all of regions 12, 13, and 15. Hydrologic subregions which now contain water quality stations include 0101, 0102, 0103, 0104, 0107, 1801, 1803, 1808, and 1014. Because the NHD is designed as a connected flow network, the new water quality events make many kinds of scientific analysis possible, such as how a source of poor water quality upstream might affect a fish population downstream, or how dams affect water temperatures downstream. By adding water quality information to the NHD as events, the USGS is improving the utility of the NHD for customers and scientists.

**National Levee Database**

The U.S. Army Corps of Engineers is in the process of rolling out their new National Levee Database (NLD) with a series of introductory seminars. About 90% of levees in the dataset will come from non-federal agencies (primarily states) and 10% from the federal agencies. The non-federal levees are just now being added, while most of the federal levees are in the NLD. Geospatially, the NLD consist of levee centerlines. The bulk of the NLD is the attributes that describe those centerlines such as dimensions, material, ownership, ID, name, condition, age, etc. The NLD is viewable from a viewer (google-based) and in tabular form. The NLD can be delivered as a service so it can be used in another viewer or a desktop GIS like ArcMap. It appears the NLD cannot be downloaded as a dataset. Most of the NLD is publicly available, but some portions of the attributes are password protected. For more information see http://www.usace.army.mil/LEVEESAFETY/ACTIVITIES/Pages/act_nldb.aspx.

**NHD Photo of the Month** by Kathy Isham

This month's photo features the coast of St. Augustine, Florida. According to Wikipedia, St Augustine lies in a region of Florida known as "The First Coast" along the eastern coast of the state. This photo was submitted by Krystal Howell, a professional photographer from Maryland. http://krystahowellphotography.blogspot.com/ To see the photo of the month go to ftp://nhdftp.usgs.gov/St_Augustine.JPG. Submit your photo for the NHD Photo of the Month by sending it to krisham@usgs.gov. This will allow the program to build a library of real-world photos linked to the NHD.

**September Hydrography Quiz / New October Quiz**

Jim Sherwood was the first to guess the September NHD Quiz as Buzzards Bay on the southern coast of Massachusetts. See ftp://nhdftp.usgs.gov/Quiz/Hydrography74.pdf. Jim's son, Samuel James Sherwood, just graduated from the Massachusetts Maritime Academy, which is located there, so he recognized the shape of the Bay immediately. Jim retired from the USGS Ohio Water Science Center and moved to coastal North Carolina three years ago. He currently travels about half the year and spend the rest of his time sailing, kayaking, swimming, crabbing, and biking, in the area. He used the NHD for work on surface water studies and continue to get the NHD Newsletter.

Others with the correct answer (in order received) were Rob Pruyne, Linda Davis, Tom Denslinger, Al Rea, David Asbury, Duane Lund, Laurie Morgan, Jim McDonald, Steve Collins, Jim Seay, Andrew Ross, Michael Smith, Neil Olson, Pete Steeves, Barb Rosenbaum, John Lynam, Bryan Anderson, Conrad Wyrzykowski, Roger Barlow, and Ken Koch,.

Jim McDonald notes: "The rock shoreline within the Bay, caused by the Appalachian igneous and metamorphic terrain, along with the sandy barrier beach along the Cape Cod Peninsula to the northeast,

were the clues that gave the answer." Al Rea, John Lynam, and Ken Koch note: "The red curving line just right of top center of the image is the Cape Cod Canal, separating the mainland on the left from Cape Cod to the right."

It's about time for another "wild and crazy river" quiz. This month's hydrography quiz can be found at ftp://nhdftp.usgs.gov/Quiz/Hydrography75.pdf. What's the name of the meandering river in the center? It's the North Fork something. Send your guess to jdsimley@usgs.gov.

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Thanks to Kristina Elite, Ariel Doumbouya, Mike Tinker, and Kathy Isham.
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.