

USGS National Hydrography Dataset Newsletter  
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by Jeff Simley, USGS

### **NHD Image Update Process**

The NHD image update process discussed in the last newsletter continues to move forward. Kansas and Oklahoma are in the editing phase with all photo inspection having been completed. The next state to be updated will be Texas. It is expected that there will not be many edits since the Texas NHD was produced from 2003 aerial imagery and should be fairly current.

### **USFS Reprojection Tool**

The two versions of the Reprojection Tool mentioned in the June newsletter are now posted at the anonymous FTP site: [ftp://ftp2.fs.fed.us/incoming/wo/nris/water\\_abat/Reprojection\\_Tool\\_v2/](ftp://ftp2.fs.fed.us/incoming/wo/nris/water_abat/Reprojection_Tool_v2/). Users need to determine if they are using ArcGIS 9.2 or 9.3 on their computer. Then they can choose the correct version posted at the FTP site, version 2.1 or version 2.1.1, respectively.

### **USGS Hydrography Grants for FY10**

USGS Partnership Grant opportunities for hydrography in the upcoming fiscal year 2010 starting October 1, 2009 will focus on tool development to build a more effective data stewardship program. Many people who wish to participate in hydrography data stewardship are unable to overcome the steep learning curve associated with the current process and software. One of the main reasons is that potential stewards cannot dedicate a great deal of time to the training needed to learn the NHDGeoEdit Tool. Also, they may not use the tool on a continuous basis and can lose proficiency. Therefore, if a simpler tool and process could be developed, many more potential stewards could contribute. It's not a simple problem to solve, however, since the NHD is a very robust data design and has many requirements to make it as powerful as it is - it's not as simple as moving a bunch of lines around. A strategy that breaks down the editing process into a two-stage operation, where the first stage is designed around the simpler task of identifying the edit while the second stage is designed around the more complex task of actually making the edit, could be more successful. It would un-bundle the process in to more achievable parts and distribute the work to specific areas of expertise. Since the USGS has focused on the "second-stage technologies", it has been unable to develop the "first-stage technologies." So it has decided to give this opportunity to the stewards themselves, supported by assistance grants to share the costs.

The USGS will be looking for proposals to develop and successfully implement technologies and processes to simplify and streamline hydrography stewardship to open it up to a newly enlarged pool of stewards. Preferably these capabilities should involve collaborative efforts focused on a coordinated strategy rather than independent and unlinked tools. The FY09 grant to the state of Alabama for the Web Edit Tool (WET) will form the cornerstone of the first-stage strategy. Proposals should be geared towards collaboratively extending or enhancing this strategy. They should identify how they will satisfy requirements and the coordination that will take place to support the WET strategy. Proposals will also be considered for other improvements to stewardship including proposals to enhance the NHDGeoEdit tool and processes. Contact Jeff Simley [jdsimley@usgs.gov](mailto:jdsimley@usgs.gov) for help with coordination and putting together a proposal. Work with your USGS geospatial liaison to submit a grant request. Grant proposals for any aspect of hydrography stewardship, both NHD and WBD, are welcome.

### **NHD Statistics**

The following statistics were calculated from the High Resolution NHD:

<u>Area Feature</u>	<u>Km<sup>2</sup></u>	<u>Mi<sup>2</sup></u>	<u># Features</u>
Lakes <sup>1</sup>	134,073	51,766	6,237,938
Rivers <sup>2</sup>	49,741	19,205	
Reservoirs <sup>3</sup>	2,524	975	136,447
Swamp/Marsh <sup>4</sup>	107,176	41,381	942,072
Ice Mass	69,236	26,733	21,643
Inundation Area <sup>5</sup>	10,352	3,997	

1 - Not including the Great Lakes

2 - Including only river polygon area, not single-line river area

3 - Typically water filtration, sewage treatment, fish hatcheries - not lakes impounded behind dams

4 - Based on USGS topographic mapping standards – not National Wetland Inventory

5 - Difference between normal pool area of impounded lakes and area at spillway height

<u>Linear Feature</u>	<u>Km</u>	<u>Mi</u>	<u>Additional Data</u>
Streams <sup>1</sup>	10,463,136	6,501,479	Perennial <sup>5</sup> – 3,207,571 Km Intermittent <sup>5</sup> – 7,190,124 Km
Artificial Path <sup>2</sup>	1,139,929	708,318	In River ~ 353,378 Km In Lake ~ 638,360 Km
Canal/Ditch	528,909	328,648	
Water Pipeline	16,826	10,455	
Connector <sup>3</sup>	29,706	18,458	
Coastline <sup>4</sup>	151,705	94,265	

1 – Generic, perennial, and intermittent single-line streams

2 – Linear pathway distance through lakes, river polygons, canal polygons, and some marsh/swamp

3 – Pathway known to exist, but not seen on imagery

4 – Including Great Lakes

5 – Not conclusive

## See the NHD Video on YouTube

It is possible to view the NHD video “The Role of Hydrography in The National Map” at: <http://www.youtube.com/watch?v=3wp0TzjQKLo>. This video has been viewed 1,300 times. It is also accessible from the USGS web site at: <http://gallery.usgs.gov/videos/124>.

## USGS Hydrography Grant Recipients for FY09

Alabama (ADECA/OWR) – NHD Web Edit Tool (WET) Development  
Alaska (DNR) - Local Resolution Integration  
Arkansas (ADEQ) – Revision of 46 Subbasins in Fayetteville Shale Area  
Colorado (DNR) – Stewardship Development  
Florida (F-DEP) – Integration of NHD/WBD and Stewardship Development  
Iowa (DNR) – Local Resolution from LiDAR Pilot Project  
Idaho (DWR) – Collect and Integrate Local Data  
Idaho (DWR) – Create Diversion Events  
Idaho (DWR) – Data Integration with Other Framework Themes  
Idaho (DWR) – Expand Use of NHD in State Agencies  
Indiana (IGIC) – GNIS Corrections and NHD Maintenance  
Indiana (IGIC) – Local Resolution Pilot for Great Lakes Initiative  
Louisiana (DOT) – Integrate Revised Data and Develop Improved Revision Techniques for Coast  
Maine (Office of GIS) – Develop NHD Outreach  
Maine (Office of GIS) – Integration of NHD/WBD and Stewardship Development  
Nebraska – Stewardship Development  
New Jersey (DEP) - Integration of NHD/WBD and Stewardship Development  
New York (WSC) - Integration of NHD/WBD  
North Carolina (CGIA) - Develop Improved Revision Techniques for Coast  
South Carolina –Stewardship Development  
Tennessee (OIR) - Integration of Local Resolution Data  
Washington (DFW, DNR, DOE, DOH) – Pilot for Hydrography Integration to NHD  
Wisconsin (DNR) – Pilot for Hydrography Integration to NHD  
Wyoming (WyGIS) – GNIS Names Integration  
Multiple States – Participation in NHD/WBD Stewardship Conference  
Total Hydrography Partnership Grants - \$1,073,068.

## New Version of HEM Tool Now Available

Version 2.1 of the Hydrography Event Management (HEM) Tools has been completed. The updated version of the tool and supporting documentation are available for download from the PNW Hydrography Framework (PNWHF) website at: <http://hydro.reo.gov/redesign.html>. Note – this release is for ArcGIS 9.2 (Service Pack 6 and higher) or ArcGIS 9.3. Highlights of this version include: Metadata Module and Bug Fixes.

## Hydrography Event Management (HEM) Survey

The USGS is currently conducting a survey regarding Hydro Event Management (HEM) Tool training needs. The HEM Tools are a set of shared components to allow for creation, management, and refresh of event data that is referenced to hydrography data in the NHDinGeo format. Your input would be greatly appreciated. To complete the survey please visit the following link:

[http://www.surveymonkey.com/s.aspx?sm=nj\\_2bKhBRDr12E6rm\\_2fjaYG\\_2fA\\_3d\\_3d](http://www.surveymonkey.com/s.aspx?sm=nj_2bKhBRDr12E6rm_2fjaYG_2fA_3d_3d).

## **New NHD Steward for the Hawaiian Islands**

Malie Beach-Smith has been selected by the State of Hawaii as the steward for NHD covering the Hawaiian Islands. She was born and raised in the islands and lives in Honolulu. Malie received her BS degree in Geology and Geophysics from the University of Hawaii, Manoa. She worked in the field of hydrologic and environmental consulting for several years before pursuing graduate studies in Geographic Information Systems. While studying at the University of Hawaii, Malie worked part-time with the Sea Grant College Program, the Pacific Islands Coral Reef Program, and the Hawaii Institute of Geophysics and Planetology. After completing Penn State's certificate program in GIS, she joined Hawaii's Department of Health, Environmental Planning Office as Hawaii's NHD Steward. Malie is intrigued with scope and possibilities of the NHD. She looks forward to providing a greatly improved data layer for inland waters across the state to improve conservation of Hawaii's aquatic resources.

## **NHD Photo of the Month**

This month's photo-of-the-month is a picture taken by Doug Werner of Little Redfish Lake located in the Sawtooth National Forest in Idaho. It was submitted by Linda Davis who works with Doug at the Idaho Department of Water Resources. See [ftp://nhdftp.usgs.gov/Hydro\\_Images/LittleRedfish.pdf](ftp://nhdftp.usgs.gov/Hydro_Images/LittleRedfish.pdf). The map locating the photo was made by Kathy Isham of the USGS. Send your favorite photograph of a hydrography feature to the USGS and each month one will be selected for display on the NHD web site. Send digital photographs to: [krisham@usgs.gov](mailto:krisham@usgs.gov).

## **AWRA Conference – Call for Abstracts**

The American Water Resources Association's popular series of conferences on GIS & Water Resources continues with its sixth GIS & Water Resources conference, this time in Orlando, FL March 29-31, 2010. The Call for Abstracts is now open and will close October 9. Geographic Information Systems (GIS) have become a fundamental tool for the analysis, planning and management of environmental and water resources systems. This Specialty Conference continues the AWRA biennial tradition of surveying the state of knowledge in the field, following the 2004 conference in Nashville, 2006 conference in Houston and 2008 conference in San Mateo. Because of its interdisciplinary approach to water resource opportunities and problems, AWRA provides an excellent professional home for the most comprehensive forum on the application of GIS to water resources engineering and sciences. The Conference Organizing Committee invites you to join this important community of scholars and practitioners in GIS and water resources in Orlando by sharing your experiences and knowledge with an oral presentation or present a poster in the gallery at the conference. Plan to submit an abstract and join us to network and experience what your colleagues are doing with GIS and Water Resources. Meet the leaders of geospatial and hydrologic technologies using and applying their skills in the sessions, exhibit hall, Opening Reception, luncheon, workshops, field trip, and networking events. AWRA's Spring Conference will be packed with opportunities for you to learn more, network, and be entertained. For the latest information visit: <http://www.awra.org/meetings/Florida2010/>

## **August Hydrography Quiz / New September Quiz**

Laurie Morgan of the Washington State Department of Ecology was the first to correctly guess the August hydrography quiz <ftp://nhdftp.usgs.gov/Quiz/Hydrography49.pdf> as Cherokee Lake, near Morristown, Tennessee. She also noted that it is a trellis drainage pattern in the folded Appalachians north of the lake. The lake was historically known as Long Pond until it was dammed by the TVA in 1941 and renamed. Long Pond is the name used in the GNIS and in the NHD.

Laurie Morgan is a hydrogeologist with the Water Quality Program, Washington State Department of Ecology. She has been part of a TMDL footprint work group and has also been a part of getting the Water Quality Standards for the State of Washington into GIS. Laurie is highly interested in the prospects for water information that NHD opens up and is interested in the potential for links to groundwater information.

Others with the correct answer (in order received) were: Dave Greenlee, Joanna Wood, Calvin Meyer, Richard Patton, James Seay, Ed Carter, Jim McDonald, Linda Davis, Jory Hecht, Joel Skalet, Brian Sanborn, Ken Koch, Steve Goldman, Carl Zulick, Cheryl Rose, Greg Enstrom, David Anderson, Elain Blok, Brian Quinn, David Asbury, and Cindy McKay.

This month's hydrography quiz can be found at <ftp://nhdftp.usgs.gov/Quiz/Hydrography50.pdf>. What is the name of the lake AND what is the purple linear feature? The view is looking east southeast towards the Continental Divide. Send your guess to [jdsimley@usgs.gov](mailto:jdsimley@usgs.gov). Thanks to Kathy Isham for the quiz.

### **Upcoming NHD Maintenance Training**

October 13-15, Lacey Washington. Contact Hank Nelson [hpnelson@usgs.gov](mailto:hpnelson@usgs.gov) or Rick Jordan at [rick.jordan@ecy.wa.gov](mailto:rick.jordan@ecy.wa.gov).

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Thanks to Charles Bowker, Greg Enstrom, Dana Baker, Ariel Bates, Henry Wolter, and Kathy Isham. The NHD Newsletter is published monthly. Get on the mailing list by contacting [jdsimley@usgs.gov](mailto:jdsimley@usgs.gov). You can view past NHD Newsletters at [http://nhd.usgs.gov/newsletter\\_list.html](http://nhd.usgs.gov/newsletter_list.html). Jeff Simley, USGS, assumes full responsibility for the content of this newsletter.