

USGS National Hydrography Dataset Newsletter

Vol. 15, No. 5, March 2016

by Steve Aichele and Al Rea, USGS

Contents:

[NHDPlus Workshop, Sacramento, July](#)

[USGS-NRCan Hydrography Coordination Meeting in Boston](#)

[US/Canada Hydrologic Unit Harmonization Complete for the Red River basin](#)

[March 2016 NHD Network Improvement Project Status Report](#)

[April GeoConflation Seminar: Preparing Data for Conflation](#)

[WBD News - Data and Model Updates](#)

[HEM checkout changes for NHD/WBD Stewardship](#)

[Elehydro Update](#)

[NHD Photo](#)

[NHD Quiz](#)

NHDPlus Workshop, Sacramento, July 14-15, 2016

The NHDPlus Workshop Announcement has been posted on the California Water and Environmental Monitoring Forum website:

<http://www.cwemf.org/workshops/nhdpluswrkshp.htm>

USGS-NRCan Hydrography Coordination Meeting in Boston

By Pete Steeves

Representatives from Natural Resources Canada (NRCan), the Canadian agency tasked with many of the same responsibilities as the USGS National Geospatial Program (including earth-science mapping and remote sensing), paid a visit to the Boston area, March 1-3, to discuss their interest in pursuing a common hydrography data model with USGS. NRCan was represented by Mike Major and Marie-Eve Martin, the USGS was represented by Alan Rea and Pete Steeves and the International Joint Commission (IJC) was represented by Michael Laitta out of the Washington D.C. office and Wayne Jenkinson out of the Ottawa office. Dialing in on Day 1 were Judy Kwan of Environment Canada, Tommy Dewald (EPA), and four representatives from USGS: Ellen Finelli, Steve Aichele, Kim Jones and Paul Kimsey, several of whom gave webex presentations.

A range of topics were discussed on Day 1, including governance, stewardship, the NHD Data Model (what works well and does not work well), NHDPlus, Ele-Hydro, lidar-derived hydrography, generalization, and WBD (along with its Canadian equivalent), as well as related activities that are happening in the Subcommittee on Spatial Water Data (SSWD) the Open

Geospatial Consortium (OGC) and NHD Management. Encompassing all of this was the exciting prospect of the USGS and NRCAN joining our wealth of human and computer resources toward a common goal. IJC representation was also an important player because these ideas were fostered through the IJC Trans-boundary Data Harmonization Task Force, which has been tasked for the past 8 years with 'harmonizing' US and Canadian hydrography and watershed data for the 120 hydrologic units that straddle the border from Alaska/Yukon to Maine/New Brunswick. Common data model visions moving forward would not have been possible without this Task Force's foundation efforts.

Day 2 took place at Harvard University's Center for Geographic Analysis. Dr Josh Lieberman showed the group of us the work he is doing in coordination with Lynn Userly (USGS, CEGIS) and others on issues related to data models in general and hydrography ontologies in particular. NRCAN was very intrigued by these discussions, and the rest of the group got insights into the research in these branches of knowledge that Dr. Lieberman is involved in both here in North America and other parts of the world.

Day 3 was a wrap up to discuss action items. Admitting to the fact that we are likely on a longer-term track for NHD in terms of evolving and simplifying the data model (which can now get input from NRCAN in regards to fostering ideas), focus shifted during the week to a probable shorter term goal of developing NHDPlusHR for a pilot area along the border. The tail end of these developments could then be to work the resulting dataset through a data model modernization process, such as the types of models being theorized by Dr. Lieberman, the OGC, and CEGIS.

All in all it was a very productive and promising week, which is already bearing fruit with follow up coordination.

US/Canada Hydrologic Unit Harmonization Complete for the Red River basin

By Kim Jones

Over the last 10 years the International Joint Commission (IJC) Hydrographic Data Harmonization Task force has been tasked with creating harmonized hydrography and hydrologic units for the international border area, which includes cross border 8-digit (Canadian 4-digit) hydrologic units. The task force is pleased to announce that we have completed the last phase (development of harmonized 10- and 12-digit hydrologic units) of this project for the Red River basin.

Within the United States, the 1:24,000-scale Watershed Boundary (WBD) dataset was adjusted, where required, through close coordination with the Minnesota and North Dakota state stewards.

Within Canada, the 8-digits were reviewed and updated where necessary and new 1:20,000-scale 10- and 12-digit boundaries were developed. The US "Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD)" <http://pubs.usgs.gov/tm/11/a3/> was used

as the guide for any updated or new delineations. These updates were made using the best available base information which in many locations included 1M LiDAR data

This newly harmonized data for the 5 cross border 8-digit units within the Red River basin will be available for download within the WBD through the USGS National Map <http://nationalmap.gov/> or in the national seamless format from <ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/WBD/FileGDB101/>.

Thanks to the many partners, programs and colleagues that willingly supported and participated in this effort.

March 2016 NHD Network Improvement Project Status Report

By Cynthia Ritmiller, Project Manager

The NGTOC continues its focus on the Network Improvement Project with the goal of identifying and correcting network and data quality issues existing in the high resolution NHD. One of the key drivers for this effort is the need to provide data ready to use for the production of NHDPlus High Resolution (NHDPlusHR). Data is being reviewed and edited to support the production schedule for NHDPlusHR beginning with Regions 06, 01,12,02,14,and 15. Recent enhancements to the NHDUpdate, NHDUtilities and EPA NHDQAQC tools are helping to increase efficiency and throughput. Coordination with appropriate NHD POC's will begin prior to review. Please see status information for details.

[Network Improvement- Status:](#)

Network Improvement Regions Completed: 06, 20, 21 and 22

Network Improvement Regions In Work:

Region 01- Sub-regions 0101-0109 were sent to Horizon systems. Sub-region 0110 will be sent to Horizon Systems soon. Cynthia Ritmiller is reviewing and completing any necessary edits.

Region 02- Chris Helm is reviewing sub-regions 0202 - 0208.

Region 04- Several sub-basins need to be reviewed and may needs edits, sub-regions include 0409 and 0415. Cynthia Ritmiller will complete these edits.

Region 07- Cynthia Ritmiller is reviewing sub-region 0714.

Region 10- Bob Merson is reviewing sub-regions 1002 - 1004, 1006, 1008 - 1018. Cynthia Ritmiller will be reviewing 1018, 1019, 1024, 1025, 1026, and 1030. Sub-region's 1005, 1007, 1021 - 1023, and 1029 have been reviewed.

Region 12- Sub-regions 1205, 1208, and 1209 were sent to Horizon Systems. Sub-regions 1201 - 1204, 1206, 1207, 1210, and 1211 are being edited by Cynthia Ritmiller and Tanya Torres.

Region 13- Erik Ahl is reviewing sub-regions 1301 and 1306. Sub-regions 1302-1305, 1307 - 1309 have been reviewed.

Region 14- Erik Ahl is reviewing sub-regions 1401, 1404, 1406 - 1408. Sub-regions 1402, 1403, and 1405 have been reviewed.

Region 15- Allen Karsh is reviewing sub-regions 1501, 1504, 1505, 1507, and 1508. Sub-regions have 1502, 1503, and 1506 been reviewed.

Region 16- Carol Brady is reviewing sub-regions 1601-1606.

Region 17- One sub-basin needs to be reviewed and may need edits in sub-regions 1707. Cynthia Ritmiller will complete these edits.

Network Improvement Regions Remaining: 03, 05, 08, 09, 11, 18, and 19

***Note: For all regions listed, as new data becomes available it will go through the QA/QC process.

April GeoConflation Seminar: Preparing Data for Conflation

By David Anderson

Preparing data for GeoConflation is extremely important and normally the longest part of the conflation process. Unprepared data can lead to severe errors, set-backs, and corrupt data during the conflation process. On April 22nd, Dave Anderson, NGTOC Partner Support team, will be holding a seminar on how to prepare data for use in the GeoConflation process from 10:30AM CDT to 1:00PM CDT. The training will cover various phases of manipulating data into an NHD schema and using provided tools to perform quality checks and ensure the data is ready for conflation. This training will be held using ArcGIS 10.2.2. If you would like to participate in the seminar contact David Anderson (danderson@usgs.gov or nhd-gct@usgs.gov) no later than April 15th.

WBD News - Data and Model Updates

By Elizabeth Stevens-Klein, Kimberly Jones, Susan Buto

Three fields in the National WBD were recently updated on the backend and will continue to be maintained as follows: "AreaAcres" and "AreaSqKm" fields for each WBDHU polygon feature class were calculated using the standard NAD1983 North American Albers coordinate system. Both fields were given the precision of 2 decimal places. Editors will continue to see the CalcAcres Add-In with new tool releases in order to reference HU size in accordance to standards, but stewards will no longer be required to update the AreaAcres or AreaSqKm fields, since these will be auto-calculated for all dirty polygons submitted back to the database after NQC. The "States" field was calculated by intersecting each WBDHU polygon feature class with Census feature classes containing state, territory, Canadian, and Mexican boundaries. The resulting values were processed so that the state IDs are alphabetically ordered and separated

by a comma, with no spaces. The “States” field, like the “AreaAcres” and AreaSqKm” fields, will also be auto-calculated for all dirty polygons submitted back to the database after NQC, so stewards will no longer be required to update the “States” field.

Three model changes have been approved by the Data Model Change Control Process Board (DMCCP) and the Acting WBD Product and Service Lead. The HUClass field on the WBDLine is being renamed to HUDigit to better represent the value in the field since we don’t use the term “class”. The HULevel field on the WBDLine is being removed from the model since it represents a legacy value that is no longer referenced and is a redundancy of the HUClass (soon to be HUDigit) field. The third model change will be renaming the NonContributingAcres and NonContributingSqKm fields on the WBDHU12, 14, and 16-digit feature classes to NonContributingAreaAcres and NonContributingAreaSqKm so that they match the rest of the schema that has the term “Area” in the name of all fields with values that represent area. Originally, we discussed making the HUDigit change first and then waiting 3-6 months before removing the HULevel field so that users could adjust to the changes. The DMCCP would prefer to see all three changes done at the same time in order to keep the WBD model version in line with the NHD model version. The revised plan is to implement these three changes all at once, provide a sample of the new model for stewards to test, and then move forward with implementing the changes.

HEM checkout changes for NHD/WBD Stewardship

By Michael Tinker

The NHD Stewardship website <http://usgs-mrs.cr.usgs.gov/usgssteward/> will see a simple but important change starting in April. Users may notice HEM checkouts overlapping their NHD Revision (NHD), Hydro Image Integration (HII), Network Improvement (NI), or Watershed Boundary Data (WBD) checkouts. In-house, HEM editors are working through our nation-wide QC of point events. During this QC, we resynchronize USGS gages and dams, and add new NWIS active gages. We are about 33% complete. We can speed our progress by allowing HEM checkouts to overlap with other kinds of checkouts. This means that users of the stewardship site may sometimes see HEM checkouts overlap with their NHD, HII, NI, or WBD checkouts. Don’t be alarmed by this! HEM editors are synchronizing only USGS point events. We will not be editing or synchronizing state point events, nor editing any other NHD feature classes. Your workflow will remain unaffected. You will still be able to edit and check in your NHD, HII, NI, and WBD checkouts normally.

Elehydro Update

By Steve Aichele

A conference call was held on March 8, 2016 to follow up on actions from the December Elehydro meeting in Reston. Key outcomes of the March 8 conference call included

presentation and discussion of a three-year plan to achieve elevation-hydrography integration, including both major interim tasks and goals; establishment of several committees to accomplish the tasks; and establishment of a steering committee to coordinate across the subcommittees and agencies. We plan to have similar broad conference calls for the general community on an approximately quarterly basis, with some specific updates occurring during upcoming Tuesday NHD Advisory team calls.

NHD Photo

The NHD Photo this month is contributed by Al Rea. The photo is of Middle Bench Lake in the Sawtooth National Recreation Area in Idaho.

Check it out at http://nhd.usgs.gov/photo_month.html

NHD Quiz

Gerry Daumiller correctly identified the feature in last month's Quiz as the Schuylkill River (pronounced "Skookle"). In the bonus points category, Gerry contributed the Philadelphia Museum of Art (of Rocky fame) and the University of Pennsylvania.

Gerry is a GIS analyst at the Montana State Library. The Library is the state theme stewards for several National Spatial Data Infrastructure themes, including the NHD. Gerry is Montana's liaison with the U.S. Board of Geographic Names and has been helping our NHD stewards identify features that need to have GNIS IDs and names attached to them. Gerry is one of the managers of web services at <https://gisservicemt.gov/arcgis/rest/services>. He has been a GIS practitioner since 1982 and has been at the State Library since 1988. Gerry is a runner, a skier, and a kayaker and records everywhere he goes with a GPS and maintains an ArcGIS database with it all on his home computer. He's originally from Kalispell, Montana and studied cartography at the University of Wisconsin-Madison.

Others with the correct answer were: Dave Hockman-Wert, Becca Conklin, Dan Button, Kitty Kolb, Stephanie Kula, David Straub, Jim McDonald, Mark Sommer, Matt Rehwald, Joseph Kinyon, John Griffin, Yvonne Allen, Jim Sherwood, John Kosovich, and Matthew Dillon. Other points of interest contributed included: Boathouse Row, the Philadelphia Zoo, the Fairmount Water Works, Philadelphia Navy Yard, and Valley Forge.

This month's hydrography quiz can be found at :
<ftp://nhdftp.usgs.gov/Quiz/Hydrography128.png>

Specifically, what is the name of the large Y-shaped lake?

For bonus points (which won't matter) what's historically significant about the town at the south end of the lake?

Send your responses to saichele@usgs.gov

