

USGS National Hydrography Dataset Newsletter

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[Water and the GitHub Community](#)

[United States/Canada Hydrologic Unit Harmonization - Upper St. John River Basin](#)

[NHDPlus High Resolution \(NHDPlusHR\) Updates](#)

[NHDPlusHR Status](#)

[Opportunity to QC NHDPlusHR Beta Region 01](#)

[NHDPlusHR Ingredient Dataset Update - Network Improvement](#)

[The Hydrographic Data Community on myUSGS](#)

[Official release of HEM Tool v 2.8.0.6 for ArcGIS 10.3.1](#)

[Release of GeoConflation tools for ArcGIS 10.3.1](#)

[NHD Photo](#)

[NHD Quiz](#)

Water and the GitHub Community

Advisory Committee on Water Information - Subcommittee on Spatial Water Data GitHub: A place for developers and data scientists to come together around national spatial water data intelligence

Contact: David Blodgett (dblodgett@usgs.gov)

The Advisory Committee on Water Information (ACWI) - Subcommittee on Spatial Water Data (SSWD) has created a GitHub community to track contributions to projects the community is working on (<https://github.com/ACWI-SSWD>). Currently, the Network Linked Data Index repositories and a PostGIS data loader for the NHDPlus flattened national geodatabase are part of the community. These repositories are used to track SQL database code, Java web services code, and Python command line scripts. In the case of the data loader scripts, these are provided with the intention that other people might find utility in using them directly. The database and web service code is hosted on GitHub to allow developers from different parts of USGS, EPA and elsewhere see and contribute functionality to software hosted centrally. These repositories have all the functionality--pull requests, issue tracking, and documentation--summarized below.

GitHub is a source code repository with numerous utilities that facilitate sustainable management of collaboratively developed software and software-like projects. Any person can obtain a GitHub account free of charge and start curating their work for free with one caveat -- it must be open for the world to see. The GitHub contribution model uses a concept referred to as the 'pull request'. In short, a pull request is asking someone else if they would like to consider adopting a change you've made to a project. 'Pull' is in reference to the act of pulling changes from one repository to another. The 'request' is made using a formal 'pull request' mechanism included in every GitHub repository that facilitates the peer review process. It includes functions like line-by-line comments and discussion, tracked reconciliation of review, and testing of suggested changes to ensure they don't introduce bugs or functional regression prior to incorporating them into the main code base. In GitHub, it is common that a team--or community--will jointly 'own' a set of repositories that support a project or projects. The community structure in GitHub is meant to help organize people into

teams and to delegate permissions to shared repositories that are owned by the community.

The ACWI-SSWD community is open to all and the subcommittee welcomes contributions in the form of additions to existing projects or new projects that fit within the mission of the SSWD. Please join us!

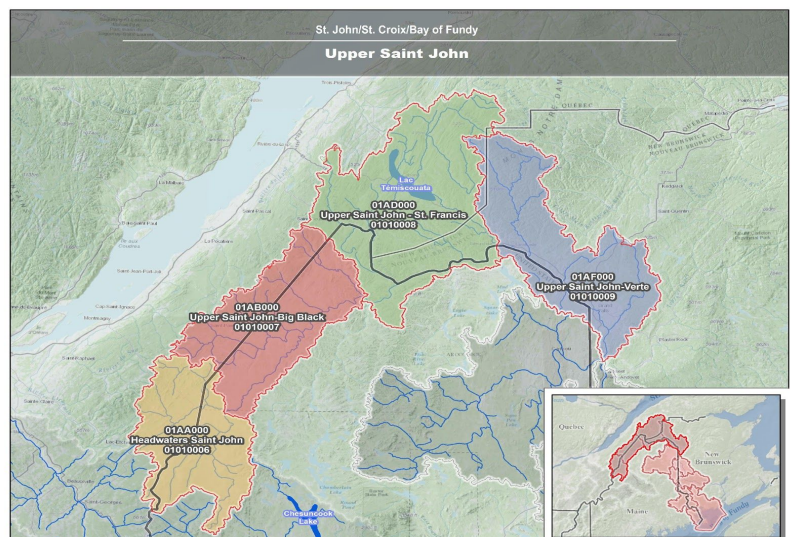
United States/Canada Hydrologic Unit Harmonization - Upper St. John River Basin

Contact: [Kim Jones \(kjones@usgs.gov\)](mailto:kjones@usgs.gov) and [Michael T. Laitta \(laittam@washingtton.ijc.org\)](mailto:laittam@washingtton.ijc.org)

The International Joint Commission Trans-boundary Data Harmonization Task Force (IJC Task Force) has been tasked for the past 10 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. For the United States, this includes the National Hydrography Dataset (NHD) and the National Watershed Boundary Dataset (WBD). The end goal of this effort is to collaborate with resource agencies, Canadian and U.S., State and Provincial, to stimulate the creation of seamless framework data between our two countries.

The IJC Task Force convened a hydrologic unit Phase III workshop for the Upper St. John River basin on November 7-9, 2016 in Quebec City, Canada. Representatives from the following agencies were in attendance: IJC, U.S. Geological Survey (USGS), Environment and Climate Change Canada (ECCC), Natural Resources Canada (NRCan), Québec Développement durable, Environnement et Lutte contre les changements climatiques (MDDELCC), Québec Énergie et des Ressources naturelles (MERN) and New Brunswick Dept. of Environment and Local Government.

The goal of this workshop was to populate the four 8-digit hydrologic units that constitute the boundary region for the Upper St. John River basin with seamless watersheds (US 10-digit, Water Survey of Canada (WSC) 6-digit codes) and subwatersheds (U.S. 12-digit, WSC 7-digit codes), standardized and interoperable with both Canadian and U.S. Federal, State and Provincial drainage area interpretations. In addition, stream/hydrography issues along the international border were reviewed. All recommended delineations were based on standard topographic, hydrography base layers and local data holdings. Particular focus was placed on hydrologic unit boundary confluences and ridgeline placement and any stream/hydrography issues along the international border.



Hydrologic unit concepts and review comments from this workshop have been provided to the participants for further review, digitization and attribution. The resulting harmonized data will be input into the WBD and NHD

when completed. For a glimpse of this workshop please visit [St. John Phase III](#). Please note that this application is still under construction.

The IJC Task Force would like to thank the participants and their agencies for their participation and support in this effort.

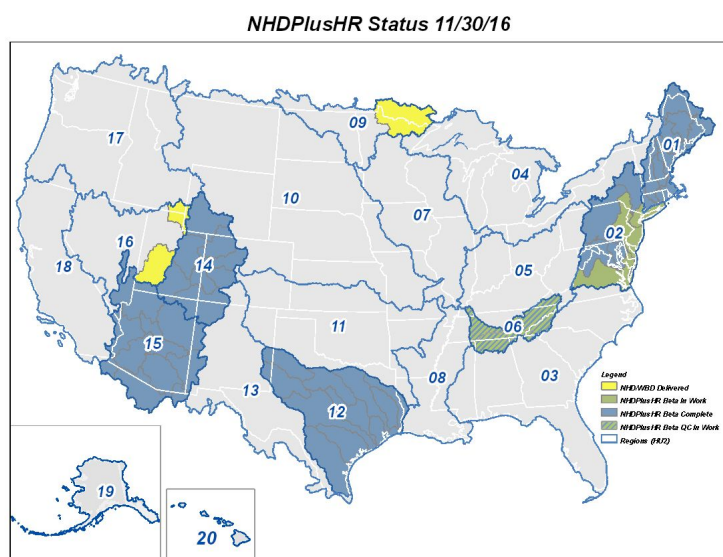
NHDPlus High Resolution (NHDPlusHR) Updates

NHDPlusHR Status

Contact: [Ellen Finelli \(elfinelli@usgs.gov\)](mailto:elfinelli@usgs.gov)

The NHDPlusHR Beta production continues to move forward.

- Hydrologic Regions (HU2's) In Work: Region 02 (including 0108 & 0110) and we have just delivered to Horizon Systems (contractor for USGS) 2 HU4's in Region 16, 1 HU4 in Region 09 - 0903 a Canadian / US NHDPlusHR Pilot.
- Hydrologic Regions (HU2's) Complete: 06, 12, 14, 15, 01. Note: Two Region 01 HU4's (0108 and 0110) will be completed with Region 02.
- Hydrologic Regions (HU2's) Beta QC: Region 06, and soon 01 (see article below).
- Data Availability: An announcement will be made as soon as these data are available via The National Map (<http://nationalmap.gov/>).



Opportunity to QC NHDPlusHR Beta Region 01

Contact: [Karen Adkins \(kadkins@usgs.gov\)](mailto:kadkins@usgs.gov) or [Tatyana Dimascio \(tdimascio@usgs.gov\)](mailto:tdimascio@usgs.gov)

The next NHDPlusHR Beta QC effort will focus on Region 1. **USGS is seeking volunteers to perform QC of the NHDPlusHR in Region 01.** This opportunity is ideal for users with previous NHD or NHDPlus experience, and most importantly, local knowledge. If you are interested in participating in QC of the NHDPlusHR, please contact Karen Adkins (kadkins@usgs.gov) or Tatyana Dimascio (tdimascio@usgs.gov).

NHDPlusHR Ingredient Dataset Update - Network Improvement

Contact: [Hannah Boggs \(hboggs@usgs.gov\)](mailto:hboggs@usgs.gov)

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).

Coordination with appropriate NHD POC's will begin prior to review. Please see status information for details.

Network improvement status as of November 28, 2016:

Network Improvement Work Completed:

- Regions-01, 02, 06, 12, 14, 15, 20, 21 and 22
- Subregions-0903, 1601, and 1603

Network Improvement Regions In Work:

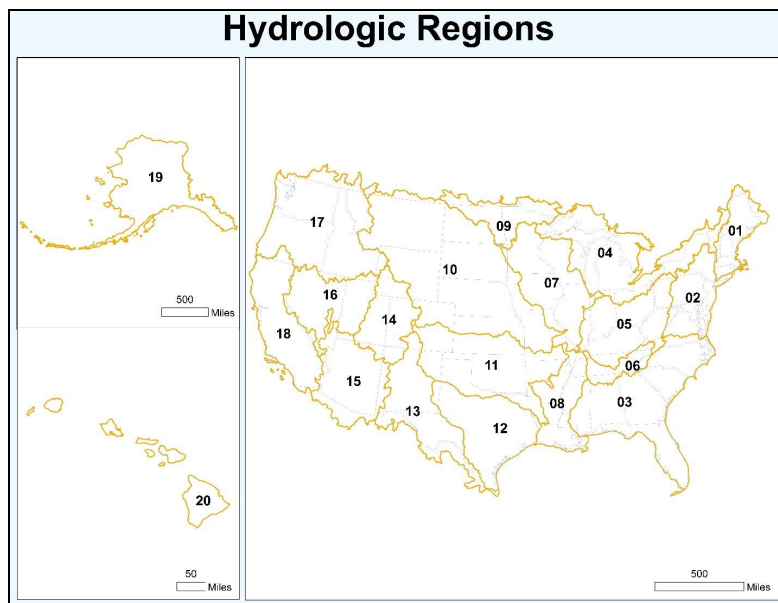
- 05, 07, 10, 11, and 16

Planned Network Improvement Work:

- Regions-03, and 09
- Subregions-0415, and 1902

Network Improvement Regions Remaining:

- 04 (remainder), 08, 17, 18, and 19 (remainder)



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

The Hydrographic Data Community on myUSGS

Contact: David Anderson (danderson@usgs.gov)

The myUSGS community (<https://my.usgs.gov/Confluence>) is a USGS sponsored, wiki-oriented site that the USGS National Geospatial Technical Operations Center (NGTOC) Partner Support team uses to communicate to our partners via the "Hydrographic Data Community" or HDC (<https://my.usgs.gov/confluence/display/hdc>) to provide the latest in information about the production NHD/WBD developments.

The HDC contains community listings such as important announcements (blogs), a team calendar, information concerning important meetings such as Technical Exchange Meetings (TEM), NHD and WBD Advisory teams, and communities for the different products USGS offers for the NHD and WBD. There are currently four communities for the different products – NHD, WBD, HEM, and GeoConflation. There is also an area for partner provided software, community contacts, and a plan to develop a stewardship community where partners can share the activities within their state and collaborates with other state partners.

Users outside of the Department of the Interior (DOI) require a myUSGS account. DOI users can get access through their DOI emails. For assistance with having an account created, or to get access to the HDC or areas restricted within the HDC, please contact David Anderson (danderson@usgs.gov).

Official release of HEM Tool v 2.8.0.6 for ArcGIS 10.3.1

Contact: Michael Tinker (mdtinker@usgs.gov)

Hydrologic Event Management (HEM) Tool 2.8.0.6 for ArcGIS 10.3.1 and NHD model 2.2.1 has been officially released. This is an incremental release to address an important bug where line and area events could not be split. Otherwise, the tool is unchanged from v 2.8.0.5. As you may recall, the 2.8.0.5 release improved a number of things, such as a faster Import and Synchronize, improvements to the Synchronize user interface and queue, nullable ReachSMDate in all HEM feature classes. The help files were updated and are now web-based, but stand alone HTML help files can always be downloaded from the HDC HEM Help and Documentation page. For a full list of what's new with HEM for Arc 10.3.1, see the "Resolved Tasks" document, also at the HEM Help and Documentation.

If you are using version 2.8.0.5, please replace it with version 2.8.0.6. *Remember: when you install a new version of HEM, you must uninstall the old version first!* The new HEM tool, and all previous versions of HEM, can be downloaded from the [Hydrographic Data Community HEM Tools](#) page. HEM 2.8 is also available at the tools section at [NHD](#) core website.

Release of GeoConflation tools for ArcGIS 10.3.1

Contact: David Anderson (danderson@usgs.gov)

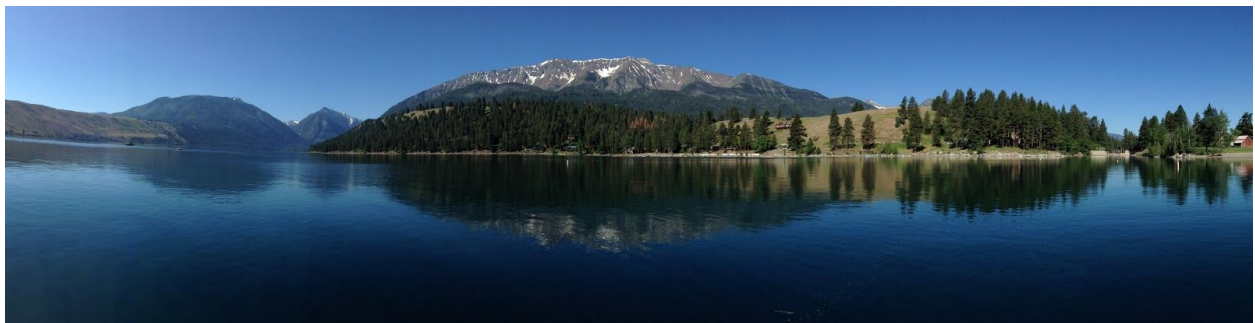
The NGTOC Partner Support team is proud to announce the release of the NHD GeoConflation tools (v3.0.0.12) for ArcGIS 10.3.1. The GeoConflation tools are used by NHD partners who want to take local resolution (> 1:24,000-scale) data and transfer the reachcode and geographic name attributes from features in a smaller scale to the locally collected data and then submit this updated information to the USGS production NHD data. The local resolution data must be carefully prepared prior to conflation using the same requirements as standard NHD data collection criteria. For example, full connectivity of flow lines through areas (NHDWaterbody and NHDArea) using artificial path features and the flow line features must all be assigned Feature Type (FType) and Code (FCode) designators.

This version of the GeoConflation tool is set to work with NHD/WBD model 2.2.1 which is now the standard release from the NHD Stewardship page (<http://nhd.usgs.gov/stewardship.html>). The tool incorporates some internal spatial comparison check changes for handling 1D (NHDFlowline) geometries. Along with new tool, documentation highlighting a new workspace selection process and metadata form, plus several other minor changes has also been delivered to the partners.

For future training sessions watch the Hydrographic Data Community Calendar (<https://my.usgs.gov/confluence/pages/viewpage.action?pageId=223543429>) for any changes in these sessions. If you need further information on the GeoConflation tools or process please contact David Anderson (danderson@usgs.gov) to nhd-gct@usgs.gov.

NHD Photo

This month's photo of Wallowa Lake was taken by Bob Harmon. Wallowa Lake (reach code 17060105000741) is located in northeastern Oregon at the foot of the Wallowa Mountains. The picture is taken looking SSW with Chief Joseph Mountain in the foreground.



Check out current and past photos at http://nhd.usgs.gov/photo_month.html

We'd love to see photos of the hydrology near you or from your travels! Please send submissions to Becci Anderson (rdanderson@usgs.gov).

NHD Quiz

Congratulations to **William Samuels** as the first to respond to last month's quiz with the correct answer! Thanks to the many others who also replied with the correct answer: Marc Weber, Erin Sobel, Calvin Meyer, Stephanie Kula, Laura Palmer, Jon Becker, Barbara Rosenbaum, Linda Davis, Ron Wencil, Jim McDonald, James Seay, Oguz Sariyildiz, Mike Robinson, Meredith Carine, Roger Barlow, Nicole Eiden, Jenny Lanning-Rush, Rich Stein, Matt Rehwald, Jill Templeton, Tommy Dewald, Janet Brewster.

As many of you mentioned in your answers, the area's hydrography includes the Patapsco River that drains into the Baltimore's Inner Harbor and Chesapeake Bay. And many of you went for bonus points noting that this is the location of the Fort McHenry National Monument and Historic Shrine. Jim McDonald shared an interesting perspective on Ft. McHenry, where his grandfather was stationed as a private in the Army:

As a different take on the history of the Fort McHenry, during the WW1, the area immediately surrounding the star-shaped 1812 fort was used as a receiving hospital for casualties from the war in Europe. The hospital was named General Hospital #2 and it was the largest receiving hospital for casualties in the United States.

November Quiz: This month's quiz is in honor of the fowl that Ben Franklin favored as our national bird: the turkey.

How many "Turkey Lakes" are there in the U.S.? There are a couple ways to find this. We'll accept either answer, but tell us what method you used! Be sure to limit your count to just those features named "Turkey Lake", not variations like "Big Turkey Lake", etc..

Send your answers with an email subject including the word "Quiz" to Becci Anderson (rdanderson@usgs.gov). Happy hydro hunting (gobble gobble)!

- Becci and Al
USGS National Hydrography Co-Leads

Thank you to the November 2016 USGS National Hydrography Dataset Newsletter contributors: David Blodgett, Kim Jones, Michael Laitta, Ellen Finelli, Karen Adkins, Tatyana Dimascio, Hannah Boggs, Michael Tinker, David Anderson, Al Rea, and Becci Anderson.

Join Our Community!

For more information, to sign up for the newsletter, or to contribute, please contact the newsletter editor Becci Anderson, USGS National Hydrography Co-Lead, at rdanderson@usgs.gov.

Visit us anytime at nhd.usgs.gov