Drainage Area: SR, VPU: 09 - Release Notes

12/01/2018 – Updated and New Data

Time of Travel and Related Attributes: The new and updated data is included in new versions of the NHDPlusAttributes and EROMExtension components. Specifically,

EROM mean annual and mean monthly statistics have been re-computed with the following changes:

Removal of upper and lower limits for reference gage regression adjustment,
Correction of reference gage regression equation, and
Reference gage regression included in all flow statistics.

PlusFlowlineLakeMorphology and PlusWaterbodyLakeMorphology tables have been updated based on the new EROM mean annual flows.

PlusFlowlineVAA mean annual time of travel (TOTMA) has been updated based on the new EROM mean annual flows. Path time (PathTime) attribute has been added and populated based on the updated TOTMA values.

12/19/2016 – Updated Components

The NHDSnapshot has been updated to correct a duplicate ComID problem in NHDFlowline.

05/10/2016 – Updated Components

The improved HUC12 downstream pointers from the February 2016 WBD Version were updated in the NHDPlus WBDSnapshot. When a correspondence between the two versions could be determined for both the HUC12 and the downstream HUC12, the downstream pointer was updated.

02/18/2016 – Updated Components

Several NHDFlowline features in the NHDSnapshot component were edited to eliminate errors when building a geometric network.

01/05/2016 – Updated Components

EROM Mean Annual and Mean Monthly flow estimates have been re-run to correct incremental flows to be the sum of the incremental flows upstream and on the flowline. EROM velocities were updated to provide velocity estimate only for flowing waters. EROM velocities are now set to -9998 (missing value) in all water bodies except swamp/marsh.

07082015 – Updated Components

The WBDSnapshot was revised to correct the values in the Acres field. The NHDSnapshot and NHDPlusAttributes were revised to correct values in FType/FCode in a handful of features.

3/18/2015 – Revised Component

The VPUAttributeExtension has been updated to include corrected incremental and accumulated mean precipication files.

1/30/2015 – Revised Component

The VPUAttributeExtension has been updated to include accumulated mean annual and mean monthly runoff files.

1/21/2014 – New Data Release

The EROMExtension was enhanced to include mean monthly flow estimates. See NHDPlusV2 User Guide for additional information.

12/07/2012 – Replacement components

Three NHDPlusV2 components are replaced with new versions: NHDSnapshot, NHDPlusBurnComponents, and NHDPlusAttributes. These replacements represent some changes in NHDFlowline ReachCode values and the inclusion of an NHDReachCrossReference table that tracks ReachCode changes from NHDPlusV1 to NHDPlusV2.

9/17/2012 – Update to VPUAttributeExtension Component

An error was discovered in the ArcGIS->Spatial Analyst->Zonal-Statistics-as-Table geoprocessing tool. The error created incorrect results in the catchment allocation and accumulation tables in the VPUAttributeExtension folder. After implementing a work-around, the tables were recreated and are posted as NHDPlusV21_SR_09_VPUAttributeExtension_03.7z.

8/13/2012 - HUC 2 WBD Reassignment

Note that some large areas of WBD have been re-coded with Hydrologic Unit Codes (HUC codes) that differ significantly from previous HUC codes. This occurred in VPU 09 where 1001 was renumbered to 0904. The NHDPlusV2 processing for this re-coded area was already underway when the changes were detected and, given the timing, it was not feasible to re-process this area or to physically move data from VPU 10U to VPU 09. However, the NHD snapshot Reachcodes on both NHDFlowline and NHDWaterbody features were adjusted to reflect the HUC8 recoding.

7/6/2012 - Initial Release Notes

Canadian Data

The Canadian National Hydrographic Network (NHN) was incorporated into the BurnAddLine feature class in the NHDPlusBurnComponents folder.

For the Red/Souris basin areas, NHN data, harmonized with high resolution NHD, was further edited by the National Research Council (NRC) in Ottawa to support a binational SPARROW water-quality modeling effort by the International Joint Commission (IJC). Isolated networks and secondary divergent paths were removed as part of this effort. Just the Canadian portion of this data was added to the BurnAddLine features.

Nodes and vertices were moved as needed for Canadian streams along the border to ensure connectivity between the NHN data and the NHDPlusV2 NHDFlowline features.

For the Rainy River/Lake of the Woods portion of VPU 09, NHN stream data was edited by generalizing much of the NHN data that drains to the Rainy River or Lake of the Woods. NHN streams along the border were edited to connect with the NHDPlusV2 NHDFlowline features.

Sinks in Canada were collected for areas identified by the NRC as being non-contributing areas. For these areas, Canadian topographic maps from Natural Resources Canada, Toporama Web Map Service were used to identify sink locations. Lakes in depression contours, on the topo maps and represented in the NHN, were classified as "closed lake" features and added to the NHDPlusV2 BurnAddWaterbody feature class. Sink points, at the centroid of the closed lakes, were added to the NHDPlusV2 Sink feature class. Other Canadian sink points in topographic depressions were collected and added to the Sink feature class.

The best available data was obtained for existing drainage divides in Canada and added to the NHDPlusV2 Wall feature class. Along the border, WBD data, harmonized with the Canadian drainage divides, was used. Additional basin data, obtained from NRC (October 2011), was used to supplement the WBD. The basins provided by NRC are considered the best available data and consist of a combination of unpublished sources from Environment Canada and the IJC. Coincident basin divides were compared between NRC data and WBD data. A major discrepancy between the WBD and NRC data was observed, and after comparison with Canadian topographic maps, the NRC data was used to update the Wall feature class. In addition, some interior drainage divides from the NRC data were added to the Wall feature class.

The NRC also provided an edge-matched DEM from Canadian CDED tiles to cover the Souris/Red river basins. Additional CDED DEM tiles were obtained and merged with the NRC/CDED DEM and the U.S. National Elevation Dataset (NED).

Catchment/Burn Settings

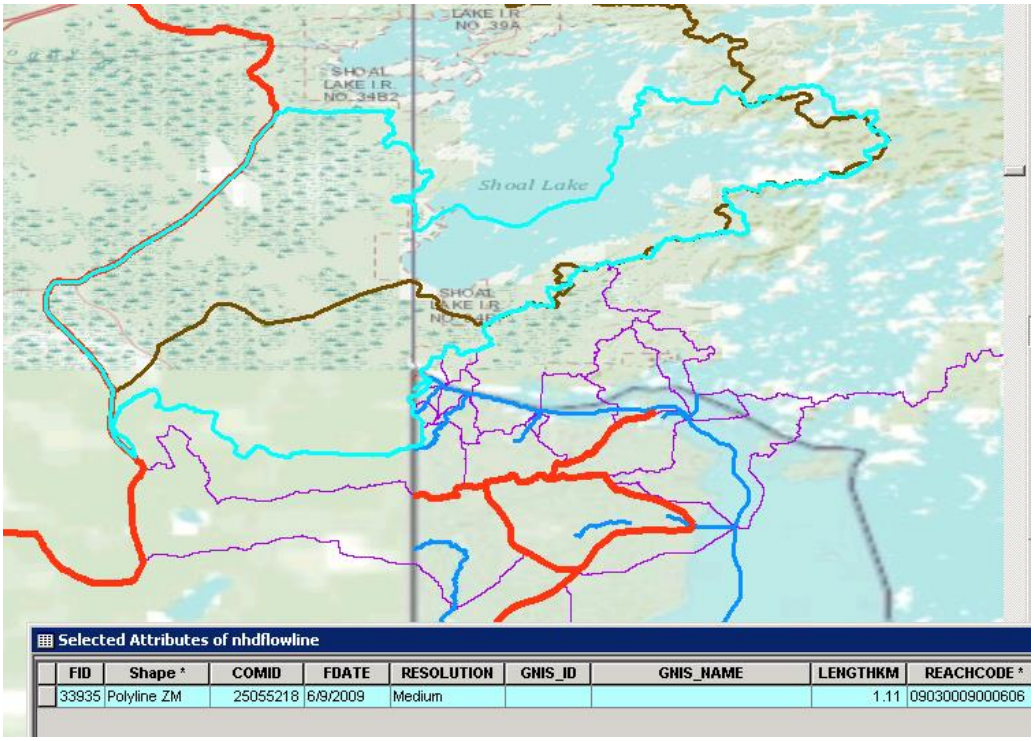
The following describes unique settings of Burn and Catchment attributes in BurnLineEvent.

1) A series of streams along the international border with Canada had wrong coordinate ordering (ie. flowing in the wrong direction). Catchments were not generated for these by setting Catchment to "N" (no).
2) An NHD network (ComIDs 22193080, 22192508, 22193082) that was isolated and outside of VPU 09 (as defined by the WBD) was set to "N" (no) for both Catchment and Burn attributes.
3) Two flowlines (ComIDs 9398722 and 9398688) conflicted with the WBD divides and thus had both Catchment and Burn properties set to "N".

Additional Notes

Two WBD HUC12s (090202020101, 090202030801) that appeared to be closed were not classified as closed by the WBD. Sinks were placed inside these HUC12s.

An area where a catchment is not as well defined is shown in the screenshot below:



Selected Attributes of nhdflowline

FID	Shape *	COMID	FDATE	RESOLUTION	GNIS_ID	GNIS_NAME	LENGTHKM	REACHCODE *
33935	Polyline ZM	25055218	6/9/2009	Medium			1.11	09030009000606

The area is the small peninsula of U.S. land on the northwestern side of Lake of the Woods. The selected catchment, which drains to a very short flowline connected to the dark blue network, should have been limited by the brown line, which is a boundary from the Canadian Fundamental Drainage Area (FDA) dataset. The FDA was not used in this area, however, and the divide was not represented in the WBD dataset. Also, the DEM quality in this area was poor.

Enhanced Unit Runoff Method (EROM)

See Appendix A of the "NHDPlus V2 User Guide" for a detailed explanation of the EROM parameters.

EROM Flow and Velocity estimates are for Mean Annual values.

The time period for these estimates is 1971 to 2000; the runoff, temperature and precipitation grids are for this time period.

For gage adjustment and Reference Gage Regression, gages must meet the following criteria:

1. A minimum of 20 of the 30 years (1971 to 2000) of complete flow records.
2. NWIS reported drainage area versus NHDPlus drainage area, for the gage, must be within 0.2 (+/- 20%)

Upstream gage drainage area proportion is 0.5 (50%)

Excess Evapotranspiration default coefficients are 0.3 and 0.5.

Gage sequestration proportion is 0.2 (20%)

Because of poor QAQC statistics in the Excess Evapotranspiration step, this step is not run in the following VPUs: 09, 10U, 17, 12. The reasons for the poor QAQC statistics is are under investigation.