

Drainage Area: MA, VPU: 02 - Release Notes

3/08/2019 – Updated Data

Minor data problem repaired in NHDPlusAttributes component, PlusFlow table.

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.

09/21/2017 – Updated Components

The NHDPlusAttributes has been updated. Various VAAs in PlusFlowlineVAA for Coastline features have been standardized.

09/20/2016 – Updated NHDSnapshot

Corrected a handful of incorrect FType/Fcode values and WBAreaCOMID values.

05/10/2016 – Updated Components

The improved HUC12 downstream pointers from the February 2016 WBD Version into 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.

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.

1/30/2015 – Revised Component

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

1/21/2014 – New Data Release

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

3/26/2013 – Replacement components

NHDPlusV2 EROMExtension component was replaced with a new version. The new version has values in the velocity fields which were inadvertently left unpopulated in the previous version.

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.

9/21/2012 – Temporary Attribute Cleanup

During NHDPlusV2 processing and subsequent QAQC, some temporary attributes were added. Some of these attributes were not deleted and were inadvertently included in the public release. These extraneous attributes do not affect the usability of the data, but they do violate the official data model and may cause issues with future NHDPlusV2 tools. Users are encouraged to download the new components. In this VPU, the replacement zip files are:

NHDPlusV21_MA_02_NHDPlusAttributes_02.7z

7/16/2012 - Initial Release Notes

Canadian data

Vector hydrography for Canadian drainage in the Lake Champlain basin was incorporated in the hydro-enforcement process. The Canadian data was a modified version of the 1:50,000-scale National Topographic Database (NTDB) (2001) compiled for the New England SPARROW water-quality models (Moore and others, 2004). Modifications of the NTDB data by U.S. Geological Survey included adding artificial paths in 2D waterbody features and generalizing the data to approximate the density of the medium-resolution NHD. Artificial paths in Quebec's Richelieu River were also added to extend the exit of Lake Champlain drainage to the NoData extent of the NHDPlusV2 production DEM data.

References:

Natural Resources Canada, 2001. National Topographic Data Base (NTDB). Geomatics Canada, Centre for Topographic Information; Sherbrooke, Quebec.

Moore, R.B., C.M. Johnston, K.W. Robinson, and J.R. Deacon, 2004. Estimation of Total Nitrogen and Phosphorus in New England Streams using Spatially Referenced Regression Models. U.S. Geological Survey Scientific Investigations Report 2004-5012.

Estuary enforcement in LandSea Polygon

Estuary polygons for hydro-enforcement of the coastal surface water features are in the \NHDPlusBurnComponents\LandSea feature class in the NHDPlusBurnComponents folder. Estuary polygons were created for New York Bay, Delaware Bay, Rehoboth/Indian River Bay, and Chesapeake Bay. The bay areas are defined by the medium-resolution NHD shoreline features with arbitrary closure lines added to approximate the extent of the estuary areas.

Artificial paths within New York Bay, Delaware Bay, and Chesapeake Bay were created in \NHDPlusBurnComponents\BurnAddLine feature class. These features are used in the hydro-enforcement process to direct drainage within these estuaries towards these flow paths.

The combination of estuary enforcement, using the polygons in LandSea and the lines in BurnAddLine, create flow direction and accumulation grids which flow through the bays to the ocean beyond. These grids, in turn, make it possible to delineate watersheds beginning in these bays and including all contributing drainage areas to the bays.

Ocean areas as NoData

Typically for NHDPlusV2 coastal production units, ocean area cells are populated with values lower than estuary and inland land areas in the hydro-enforced DEM. The ocean cells are hydro-enforced using the ocean area polygon defined in the \NHDPlusBurnComponents\LandSea feature class. However, for VPU02, the ocean areas are assigned as NoData in the hydro-enforced DEM. This was done because DEM downstream flow direction traces within the water area of Long Island Sound gave undesirable results. An improvement in this approach may be possible in the next version of NHDPlusV2. It should also be noted that much of the drainage to Long Island Sound comes from another NHDPlusV2 VPU (VPU01), making watershed delineations for Long Island Sound incomplete using data only from VPU02.

WBD

The Lake Champlain Basin formerly part of HUC2 02 was recently changed in the WBD by re-coding all HUCs to belong to HUC2 04. Also, a direct drainage coastal HUC12 (HUC 011000060405) was included in VPU02, because this area was assigned to VPU02 in the NHD snapshot.

See additional information in the NHDPlusV2 User Guide on how NHDPlusV2 deals with this and other areas of WBD re-coding and coding disagreements with the NHD snapshot.

Catchment/Burn Settings

NHDFlowline features in conflict with the VPU02 boundary were set to “N” (no) for both Burn and Catchment attributes in \NHDPlusBurnComponents\BurnLineEvent feature class. An NHDFlowline pipeline feature (ComID 8126565) was set to “N” (no) for the Catchment attribute and “Y” (yes) for the Burn attribute to allow for hydro-enforced DEM drainage to connect into the pipeline.

BurnAddLine

There are several lines in the BurnAddLine feature class that represent BurnLineEvent features from adjacent VPU01 and VPU03N. These features were added to BurnAddLine to constrain the catchment delineations at coastal VPU connection points between these VPUs.

Several NHDFlowline features from high-resolution NHD were added to BurnAddEvent to drain HUC12 020403030101 to HUC12 020403030104 which is in agreement with the WBD.

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%).