

Integration of North Carolina hydrography with the USGS NHD

USGS is looking at the future of modernizing NHD to be the 3DHP which will integrate the 3DEP program with hydrography. In the next few years, all new updates to the NHD will become the 3DHP. The 3DHP will be a more spatially accurate dataset using 1-meter DEMs created from LIDAR to derive hydrography, and it is a much simpler data model in comparison to the current NHD model. The NHD data model will be simplified to be more compatible with 3DHP. However, it could be a couple of years before the new NHD model is in use.

USGS also is changing its approach as to who is creating the hydrography for the nation. In past, NHD creation was left up to the states, and this led to dataset that is not uniform, standardized, or complete nationwide. For the 3DHP, the USGS wants an approved set of private contractors to create the nationwide hydrography, and the USGS will QA/QC all hydrography data to its specifications. The USGS believes following this path will lead to a more accurate and uniform dataset. The operational timeline for the 3DHP is still a few years out and is dependent on funding and pilot results. The USGS is currently working on pilots, ironing out the data model for the 3DHP and, at the same time, simplifying the NHD model.

Through the NC DOT ATLAS project, North Carolina is currently creating its own lidar derived hydrography using a 10-foot DEM created by the NC DEQ. A contractor is ingesting this data to attribute and create a dataset for the ATLAS project. A statewide draft hydrography geometry could be ready as soon as the summer of 2022.

It is a goal of the North Carolina Geographic Coordinating Council to integrate the North Carolina hydrography with the NHD. There are a few ways North Carolina hydrography can be used to update NHD, but none are immediate. Below are options for integration:

1. USGS contracts and handles creation the 3DHP for the state from the 1-meter DEM. USGS performs the quality control for the data. The state pays for the project at some level. 3DHP is still in the pilot phase, and it could be a few years before this happens.
2. The North Carolina 19 county local-res western data that was created in 2007 could be brought into 3DHP but with some caveats. The level of acceptance is met with a variance by USGS. The Hydro Working Group has some questions on how this could be done.
3. The state pushes the new North Carolina streams data derived from the ATLAS project to the NHD before the 3DHP is up and running. This option could be a very costly process for the state, and the NHD program is currently undergoing changes and probably would not be ready for at least a couple of years.
4. The state contracts with the contractor of its choice through a BAA with USGS and creates the 3DHP data for NC. USGS performs the QA/QC, but there is some question as to whether the state's current source elevation will meet the same specifications as USGS's. The 1-meter DEM

would be the preferred elevations source for elevation, and the existing ATLAS hydrography layer is based on a 10-foot DEM

The path the Hydro Working Group is pursuing is to utilize the hydrography coming out of the ATLAS to create a North Carolina hydrography that stakeholders can utilize in state. Feature classes and attributes will be added to the dataset with possible future integration with NHD in mind. Some of the fields such as Feature Class, Feature Type and Elevation Class could be part of the North Carolina hydrography dataset to make future integration easier.