

About ATLAS Hydrography

The NCDOT Advancing Transportation through Linkages, Automation, and Screening (ATLAS) program has developed a statewide elevation-derived hydrography data resource, called ATLAS Hydrography. The dataset depicts detailed stream lines developed from LiDAR-derived Digital Elevation Models and modeled stream origin data.

The stream features are attributed with information necessary to generate National Environmental Policy Act (NEPA) documentation for transportation projects, along with other associated water quality and geomorphic characteristics. ATLAS Hydrography supports NCDOT in the generation of the following reports: General Planning, NRTR generation (location of water resources, name/index numbers of waters, water quality classifications, impaired waters, NCWRC trout waters, USACE stream habitat temperature, bald eagle habitat), Permitting (Section 10 permitting, Section 404 permitting, Section 401 permitting, Individual permitting, stream location, USACE potential jurisdiction, NC Division of Coastal Management (NCDQM) potential jurisdiction, water quality classifications). This data also includes EPA Integrated Reporting Categories (cat 5, 303(d) Impaired Waters List), and WRAPS (Watershed Restoration, Assessment, and Protection Superstructure) NCDEQ program data. The data may also be used for other NCDOT activities, such as protected species modeling and NCDOT hydraulics studies. The ATLAS Hydrography resource:

- Serves as a single location for the housing of hydrography data from multiple sources
- Offers a consistent dataset for communities and agencies across the state
- Provides a framework for dynamic hydrographic geometries and attribution
- Incorporates previously unmapped stream features
- Identifies receiving waters of unnamed and/or unmapped tributaries
- Identifies features considered in impact calculations
- Provides a system for the linear referencing of drainage networks and infrastructure

The development of ATLAS Hydrography is a collaboration between the NCDOT and the Headwater Streams Spatial Dataset (HSSD) program of the NC Department of Environmental Quality (NCDEQ), along with involvement from various state and federal agencies. LiDAR and related data resources are contributed by the NC Floodplain Mapping Program.

ATLAS has created two versions of the statewide dataset. Version 1.4 (2019) is currently available via the ATLAS Toolset. Version 2.1 (2023) was completed using the latest generation of statewide LiDAR data and is pending release with the new ATLAS Map platform. The ATLAS Hydrography Team is now assessing requirements for the design and development of ATLAS Hydrography 3.0.

The NC Statewide Mapping Advisory Committee acknowledges the rich content of the ATLAS Hydrography dataset. In September 2023, the group completed a Gap Analysis by soliciting input from members of the statewide GIS community and developed preliminary specifications with an intent to evolve ATLAS Hydrography into an official NC Hydrography digital resource.