# National Hydrography Dataset Plus (NHDPlusV2)

The National Hydrography Dataset (NHD) is a vector database that maps stream and river networks, waterbodies such as lakes and marshes, flow paths, and more than 50 other types of surface water features like those found on U.S. Geological Survey (USGS) topographic maps. The 4 NHD layers used for EnviroAtlas cover NHD areas (inundation areas or submerged streams), waterbodies (lakes, reservoirs, and marshes), and two resolutions of stream and river flowlines. The NHD flowlines maps depict a generalized view of stream order 4 and higher (top of figure right) and a higher resolution view of stream orders 2 and 3 (lower left section of figure right).

The EPA and USGS have incorporated NHD into their NHDPlusV2 dataset, which integrates useful features from the National Hydrography Dataset (NHD), the National Elevation Dataset (NED), and the Watershed Boundary Dataset (WBD).

NHD feature types such as rivers, flowlines, waterbodies, and surface water landmarks are useful for overlaying with other EnviroAtlas data (like elevation or political boundaries) to create base maps for exploring other EnviroAtlas variables. In addition, because NHD uniquely identifies stream segments and relates them to other water resource attributes such as dams, point source dischargers, and stream gages, it serves as a powerful tool to facilitate water resources analyses. NHD's flow network, in conjunction with NHDPlus, allows for the directional tracking of water to trace possible impacts upstream or downstream.

Things to know before using these data:

A large and complex national dataset like the NHD contains errors that are attributable to its sheer size, but also to the types of variables contained within it. For example, a stream's perennial status may change during drought cycles or the direction of flow of streams may be recorded in error because of water diversions. As a result, the NHD, along with the National Elevation and Watershed Boundary datasets, are constantly changing as portions are corrected and updated. The level of detail shown is relative to the scale of the data; the user may have to zoom in to see the higher resolution stream layer. Smaller waterbodies and first order streams may not be shown.

NHD Stream order 4 and higher and more detailed stream order 2 and 3.
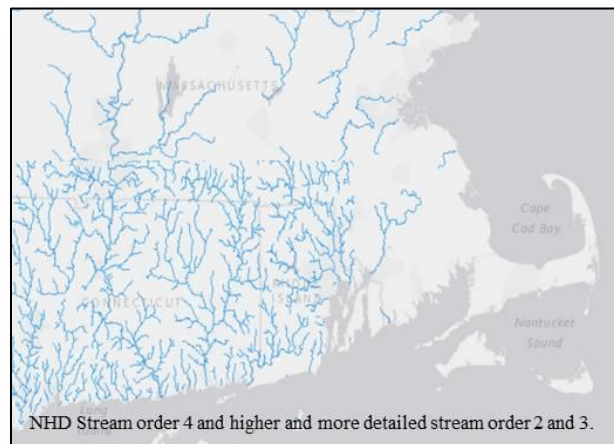
Because the NHD provides a nationally consistent framework for analysis, water quality information linked to stream reach addresses by one organization can be shared with other organizations.

Where can I go for more information?

EPA's Watershed Assessment, Tracking and Environmental Results System (WATERS) integrates information from various EPA water programs by linking it to the NHD network.

The NHD uses an addressing system to link to information about specific reaches or waterbodies from other related data such as water discharge, water quality, or fish populations. This data architecture allows analyses of associations between upstream influences and downstream effects. Another website lists many NHDPlus applications submitted by various organizations.

The EPA and Horizon Systems Corporation have developed a NHDPlus Version 2 User Guide (January 2016), available online. Click here to view NHDPlus metadata.