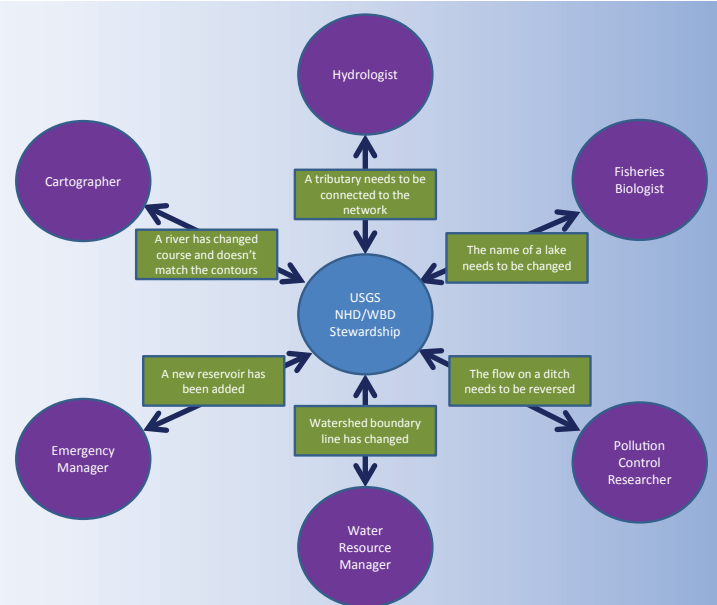


# The National Map Hydrography Data Stewardship— What is it and Why is it Important?



Island Lake in the Bridger-Teton National Forest in Wyoming. Photograph by Eric Simley, University of Colorado.



The NHD and WBD Stewardship Programs support the requirements and needs of a diverse range of users, including scientists, GIS professionals, and management.

## Background

The National Hydrography Dataset (NHD) and Watershed Boundary Dataset (WBD) were designed and populated by a large consortium of agencies involved in hydrography across the United States. The effort was led by the U.S. Geological Survey (USGS), the U.S. Environmental Protection Agency (EPA), and the Natural Resources Conservation Service (NRCS). The high-resolution NHD dataset, completed in 2007, is based on the USGS 7.5-minute series topographic maps at a scale of 1:24,000. There are now 26 million features in the NHD representing a 7.5 million mile stream network with over 6.5 million waterbodies. The six-level WBD, completed in 2010, is based on 1:24,000 scale data and contains over 23,000 watershed polygons.

The NHD's flow network, attribution, and linear referencing are used to conduct extensive scientific analyses. The NHD is ideal for cartographic applications such as the US Topo topographic map series, and also is available on the Geospatial Platform, which provides shared and trusted geospatial data, services, and applications for use by government agencies, their partners, and the public. The WBD watersheds are used by scientists and managers to identify discrete drainage areas. The ongoing maintenance of the NHD and WBD is essential for improving these datasets to meet the ever increasing demand for currency, additional detail, and

more significant attribution. The best source of information about changes in local hydrography are users closest to the data, such as State and local governments, as well as Federal land management agencies, and other users of the data. The need for local knowledge has led to the creation of a collaborative data stewardship process to revise and maintain the NHD.

## Why Stewardship?

“The Arkansas Department of Environmental Quality (ADEQ), together with many other state agencies, is heavily dependent on the NHD to meet our water resource needs. All state agencies work together to ensure the NHD stays current to meet statewide business needs in water resources. Stewardship allows us to keep the NHD current on The National Map, and to maintain the NHD as a vital resource for data integration and water resource management. The ADEQ has adopted the NHD as the base for the Arkansas Pollution Control and Ecology Commission Regulation No. 2, Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas, our Impaired Waters (303(d)) list, and other water related documents.” Katy Hattenhauer, Arkansas Department of Environmental Quality.

“A State agency is often the intermediary between local and Federal programs for land management. In North Dakota, the Department of Health administers the nonpoint-source pollution control program. This watershed-based program provides EPA grant funds to local organizations for projects that reduce nonpoint-source pollution. In addition, the North Dakota Game and Fish Department uses the WBD sixth-level hydrologic unit codes for their “Save Our Lakes” program, and the Private Lands Section of the Wildlife Division uses the hydrologic units for their land-use inventories.” Ann Fritz, North Dakota Department of Health

“As an NHD steward, the Idaho Department of Water Resources (IDWR) is able to coordinate with the USGS to produce an NHD product that is useful at a local, state, regional and national level. Updated NHD is useful for interstate compacts dealing with water, Columbia basin treaties, and ground and surface water issues with neighboring states. By keeping our local hydrography information current and correct, it is easier to administer water rights, and to resolve water issues. Through stewardship, we provide local hydrography knowledge, and we work with the USGS, other state stewards, and NHD users to develop the NHD into a Geographic Information System (GIS) layer that works for our customers here in Idaho.” Linda Davis, Idaho Department of Water Resources

“The NHD provides a common thread between Total Maximum Daily Loads (TMDLs), Basin Management Action Plans (BMAPs), Numeric Nutrient Criteria (NNC) development, water quality reporting to EPA and numerous map products. Being a steward for the NHD has allowed the State of Florida, Department of Environmental Protection to become a leader in multiple water programs. Emphasizing updates to the NHD directly results in better management of the state’s natural resources while also fostering good relationships between state, regional, county, and city agencies as well as many private entities including consulting firms and non-profit organizations.” Edwin Abbey, Florida Department of Environmental Protection.

## The Stewardship Process

The stewardship program of the NHD/WBD provides an opportunity for local users who are knowledgeable about the hydrography to update the data. The NHD and WBD are authoritative data sources and the steward of the data must represent an authority in terms of technical skill and an impartial approach to portray hydrography over a given area. A formal agreement must be established using a Memorandum of Understanding (MOU) between the USGS as the national data coordinator, and a principal steward for a State, which in many cases is a state government agency with a leadership role in water issues. There may be one or more substewards that provide hydrography updates under the principal steward. Each member of the stewardship process has specific duties and responsibilities as outlined in the MOU.



Colorado River flowing through Gore Canyon in Colorado. Photograph by Jeff Simley.

The principal steward is the primary point of contact between the USGS and the state’s NHD/WBD maintenance efforts. The steward adjudicates decisions on the data provided by substewards in the state to provide the most accurate assessment of hydrography in the state. The steward also is responsible for promoting the NHD/WBD and for making the data publically available in the state. The USGS is responsible for standards, data management, quality assurance, and distribution. The USGS provides partner support with a point of contact assigned to the state. Further, the USGS also is responsible for providing the training and resources needed to manage the editing process.

The NHD and WBD Update tools guide the steward through each step of the editing workflow. The NHD Update tool ensures that a steward enforces the rules of the NHD/WBD database and provides a complete quality control process to ensure data integrity. As technology and the NHD/WBD evolve, the tool will be updated to maintain its effectiveness.

If you are interested in the maintenance of the NHD/WBD, contact the USGS by selecting your State on the map at <http://nhd.usgs.gov/stewardship>.

If you are interested in NHD data, information, tools, or tutorials, they are found on the public NHD Web site at <http://nhd.usgs.gov>.

The NHD stewardship program Web site is located at <http://usgs-mrs.cr.usgs.gov/stewweb>.

By Dave Arnold