Stewardship of The Watershed Boundary Dataset (WBD)

A cooperative effort managed by U.S. Geological Survey and the Natural Resources Conservation Service

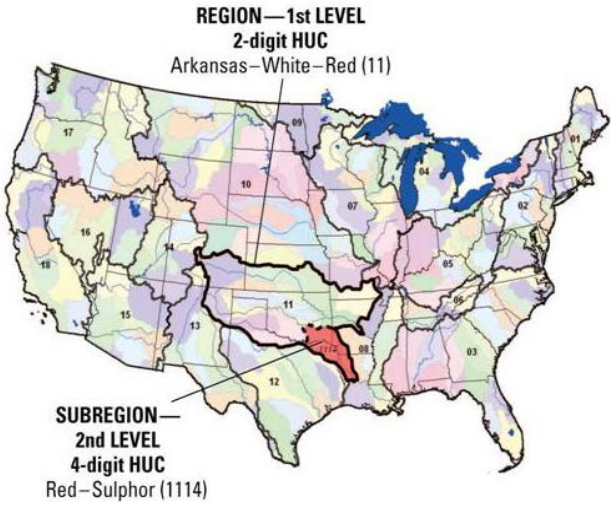
The WBD Defined

The Watershed Boundary Dataset defines the aerial extent of surface water drainage to a point. The intent of defining hydrologic units (HU's) for the Watershed Boundary Dataset is to establish a base-line drainage boundary framework, accounting for all land and surface areas. The selection and delineation of hydrologic boundaries are determined solely upon science-based hydrologic principles, not favoring any administrative boundary, special projects nor particular program or agency. HU's are delineated at a 1:24,000-scale in the conterminous United States, 1:25,000-scale in the Caribbean, and 1:63,360-scale in Alaska. A hydrologic unit has a single flow outlet except in coastal or lakefront areas as stated by the ***Federal Standards and Procedures for the National Watershed Boundary Dataset (WBD),*** herein after referred to as the "Standard" http://pubs.usgs.gov/tm/tm11a3.

WBD History

Beginning in the 1970's, the US Geological Survey (USGS) developed Hydrologic Units (HU's) for the United States dividing the country in to 21 Regions, 222 Subregions, and 2,149 Accounting Units. During the late 1970's the Natural Resources Conservation Service (NRCS) initiated a program to further divide the HU's into watersheds and subwatersheds. By the early 1980's, watershed mapping was complete for most of the US.

In the early 1990's, the advent of GIS made mapping of digital HU boundaries feasible and the NRCS started to delineate HU's to meet 1:24,000 National Map Accuracy Standards. The goal of this initiative was to provide a hydrologically correct, seamless and consistent national GIS watershed boundary database.



WBD Completed

The nationally consistent and seamless WBD is now complete for the lower 48 states, Alaska, Hawaii, Puerto Rico and the Virgin Islands. This significant accomplishment was achieved through partnerships of 10 Federal agencies, 8 different state agencies, local organizations, universities, and Tribes in all 50 states and U.S. territories. Data can be obtained from the NRCS Geospatial Data Gateway: http://datagateway.nrcs.usda.gov or at http://viewer.nationalmap.gov/viewer/ from the USGS. For steward edits, checkouts are obtained by designated WBD In-State data stewards at this location: http://usgs-mrs.cr.usgs.gov/stewweb/index.html.

The Watershed Boundary Data Set complements the NHD and supports numerous programmatic missions and activities including:

- watershed management, rehabilitation, and enhancement
- aquatic species conservation strategies
- flood plain management and flood prevention
- water-quality initiatives and programs
- dam safety programs
- fire assessment and management
- resource inventory and assessment
- water data analysis
- water census

WBD Stewardship and Maintenance

Stewardship is defined as the formalized accountability for the management of data resources. In January of 2012, national responsibility for stewardship and maintenance of the Watershed Boundary Dataset transferred from NRCS to the USGS. Incorporation of the WBD as a companion dataset into the National Hydrography Dataset (NHD) was the driver behind integrating these two highly dependent datasets into one program.

Collaborative stewardship of WBD data is distributed across the Nation, typically on a State-by-State basis. The WBD In-State Stewards coordinate and assume responsibility for identifying and implementing changes at the State level. Other organizations with specific local or topical interests may assume further stewardship under the auspices of the WBD In-State Stewards. In many cases, the State data stewards for the NHD and WBD are represented by different individuals and organizations.

The NHD approach to data stewardship provides documented roles and responsibilities between the USGS and

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NHD In-State Stewards. In most cases, existing NHD agreements are modified to include WBD responsibilities, and new agreements integrate stewardship for both datasets through coordination between stewards, even when they reside in different organizations.

The WBD National Technical Coordinators, a team of individuals who review, facilitate, and approve updates, work closely with WBD In-State Stewards to ensure that all revisions to the WBD follow the guidelines set forth in the standard. Protocols and processes that are administered by the USGS at their Geospatial Program National Operations Center have been established to manage changes in the national repository for the WBD.

A suite of editing tools is available for the WBD. The geometric relationships in the hydrography datasets, along with the edit tools which preserve the integrity of the data model, are the keys to the successful implementation of data stewardship. The USGS National Geospatial Technical Operations Center (NGTOC) is responsible for maintaining and improving these tools as well as conducting the necessary training. To maintain the hydrologic units of the WBD now and in the future, the WBD In-State Stewards are provided with these WBD Edit Tools. This unique toolset facilitates steward editing of the WBD data and management of metadata. The WBD Stewardship website, http://usgs-mrs.cr.usgs.gov/stewweb/index.html is where stewards check out their area of interest for editing. Contact Stephen Daw at sgdaw@usgs.gov or call 303-202-4418 for assistance with the stewardship website or for tool training.

State Stewardship Role:
All states currently have a WBD In-State Steward who has coordinated and provided oversight for the initial development of the WBD within their state. NHD Stewards are identified within the NHD stewardship agreements that are established between USGS and the states. Even though the NHD and WBD stewardship roles may remain in separate organizations within a state, there must be an appropriate level of coordination to ensure adequate stewardship and governance. In effect, separate NHD and WBD stewards within a state collaborate fully in order to effectively fulfill the stewardship function. The responsibilities described below outline the steps needed to ensure this level of cooperation.

Stewardship of the NHD/WBD at the state level:

General Roles and Responsibilities:

- Serve as the in-state steward for the NHD/WBD. This role may be satisfied by the same or separate organizations for the two datasets.
- Adopt a cooperative and integrative approach to stewardship of the datasets.
- Ensure strong working relationships that promote integration of the two datasets.
- Provide publicly available information on status of data stewardship activities.

Relationship of State Stewards to other state entities:

- Establish in-state agreements to further foster stewardship, especially when NHD and WBD stewards reside in different organizations.
- Coordinate with other Federal and in-state agencies, adjacent states, Native American organizations and entities, counties, and other local governmental organizations to identify and provide programmatic coordination on maintenance activities.
- Accept input from other agencies and organizations. Consider any submitted change and decide authoritatively if the change will be accepted or not. Provide reports documenting outcome of submittals.
- Maintain an awareness of the activities of other agencies and organizations involved in stewardship in order to include all applicable input for a given area.

Relationship of State Stewards to national entities:

- Act as Point of Contact for the USGS and NRCS on stewardship issues.
- Collaborate with the USGS and NRCS on any proposed edits originating at the national level.
- Adhere to agreed-upon transaction process workflow for transactions upon the national USGS repository.
- Rework updates returned for correction and resubmit to the U.S. Geological Survey/NRCS within the timeframe agreed upon within the stewardship agreement with USGS and NRCS.

Technical Responsibility:

- Provide technical support and education within the state regarding use, access, and application of the data sets.
- Coordinate and approve all changes to the datasets. Ensure that all decisions are based on the technical requirements of the NHD/WBD.
- Provide primary data maintenance. Ensure that all edits are in accordance with the Standard.
- Provide QC and resolve data conflicts.
- Ensure integration of NHD and WBD geometry and attribution.
- Be responsive to the submittal of suggested edits by responding within the timeframe agreed upon within the state cooperative agreement.

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