



National Hydrography Dataset Release Notes Model Version 2.0

National Geospatial Technical Operations Center
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INTRODUCTION

The U.S. Geological Survey (USGS) periodically revises the data model used by the National Hydrography Dataset (NHD) to incorporate improvements designed to keep the NHD relevant to the needs of its users. A new 2.0 version of the model is now being released to provide many enhancements over the previous model 1.06. These enhancements fall into two major categories:

The first is that the NHD will now be based on an entirely new Watershed Boundary Dataset (WBD) co-developed by the USGS and the Natural Resource Conservation Service in cooperation with many other federal and state agencies. This new WBD provides nine major advantages over its predecessor: (1) It is based on 1:24,000-scale criteria and therefore has considerably improved resolution accuracy, (2) The methodology and standards used greatly improve the quality of the drainage units, (3) The WBD was produced using the input from various organizations to maximize the knowledge used in building the units, (4) The four level hierarchy has been expanded to six providing finer classifications, (5) an additional seventh and eighth level exist for use as needed, (6) The WBD is in the same model as and can be packaged with the NHD, (7) The WBD and NHD are better integrated and more directly compatible, (8) The WBD is in a new model with enhanced functionality, and (9) The WBD can be maintained in a data stewardship environment. To clarify this change, the “Hydrologic Units” feature dataset in the NHD model will be renamed the “WBD” feature dataset.

The second involves five data enhancements to include: (1) A Permanent Identifier field using a Globally Unique ID (GUID), in addition to the existing Common Identifier field (ComID), enabling an instant and permanent feature identifier when editing, (ComID field will be retired in approximately one year), (2) An External Crosswalk table to accommodate the linking of NHD ID's and source ID's, enabling a more direct link between the NHD and source datasets used to build the NHD, (3) A Metadata Process ID and related new domain values to allow for and improved functionality in the use and editing of metadata, (4) new NHDPointEventFC codes to identify Diversion Structures as “General”, “Withdrawing”, and “Contributing”, allowing a more complex modeling of diversions, and (5) a new NHDPointEventFC feature “Water Quality Station” to allowing the integration of USGS NWIS water quality sites to The National Map.

While WBD will now be available to NHD stewards and other users of NHD data, WBD stewardship operations will not begin until the WBD editing tools and stewardship web pages are created sometime later this fall. Until that time, WBD stewards will continue to provide updates to the WBD to the NRCS office in Ft. Worth. The often talked about reach code migration for

the new WBD boundaries will also be a part of version 2.0. The latest version of the WBD is WBD_archive_24June2010_9.2_File.gdb. This data can be found at the NRCS data gateway at: http://datagateway.nrcs.usda.gov/FAQ/FAQ_main.html.

NHD Partners who currently have work in-progress will continue on with the 1.06 templates and tools. After the 2.0 release Partners will be required to update using 2.0 templates and associated maintenance tools.

See TOOL/TEMPLATE MATRIX

Current Model (1.06)

OBJECTID	ParameterName	ParameterValue
1	Version	NHD090811
2	Resolution	High
3	Processing Organization	
4	SchemaVersion	1.06

New Release July 9th, 2010 (2.0)

OBJECTID	ParameterName	ParameterValue
1	Version	NHD100628
2	Resolution	High
3	Processing Organization	
4	SchemaVersion	2.0

Pre-staged Subregions will be rebuilt in Model 2.0 as soon as possible. Please check the date of the zip file prior to use.

Personnel Gdb, File Gdb and Shapefile format will be available

- EX: NHDM1710_92.zip
- NHDM1710_93.zip
- NHDH1710_92.zip
- NHDH1710_93.zip

Hydrologic Units (HUC_8) vs WBD (WBD_HU_8)

OLD HUC_8 that does not exist in WBD_HU_8		OLD HUC_8 Became ??? (Intersects any part of WBD_HU_8)
02060007	Blackwater-Wicomico. Delaware, Maryland.	Part of 02080110
02060008	Nanticoke. Delaware, Maryland.	02080109
02060009	Pocomoke. Delaware, Maryland, Virginia.	Part of 02040303,02060001, 02060005, 02080101,02080109, 02080110, 02080111
02060010	Chincoteague. Delaware, Maryland, Virginia.	Part of 02040207, 02040303, 02080109, 02080111
03020106	Bogue-Core Sounds. North Carolina.	Part of 03020105, 03020204, 03020301, 03020302
03030001	New. North Carolina.	Part of 03020204, 03020301, 03020302, 03030005, 03030007
04020300	Lake Superior	Will be added to WBD as 04020300
04060200	Lake Michigan	Will be added to WBD as 04060200
04080300	Lake Huron	Will be added to WBD as 04080300
04120200	Lake Erie	Will be added to WBD as 04120200

04150200	Lake Ontario	Will be added to WBD as 04150200
10160010	North Big Soix Coteau. South Dakota.	Part of 07020001, 09020105, 10160003, 10160005, 10160006, 10170201, 10170202
14010006	Parachute-Roan. Colorado.	Part of 14010005, 14050006, 14050007
18010111	Bodega Bay. California.	18010109
18020101	Sacramento-Lower Cow- Lower Clear. California.	Part of 18020003, 18020005, 18020151, 18020152, 18020153, 18020154, 18020155
18020102	Lower Cottonwood. California.	Part of 18020152, 18020154, 18020155
18020103	Sacramento-Lower Thomes. California.	Part of 18020104, 18020115, 18020152, 18020155, 18020156, 18020157, 180201058
18020105	Lower Butte. California.	Part of 18020104, 18020121, 18020157, 18020158, 18020159
18020106	Lower Feather. California.	Part of 18020104, 18020121, 18020123, 18020125, 18020126, 18020158, 18020159, 18020161, 18020163
18020107	Lower Feather. California.	Part of 18020125, 18020159
18020108	Lower Bear. California.	Part of 18020126, 18020159, 18020161
18020109	Lower Sacramento. California.	Part of 18020104, 18020111, 18020116, 18020126, 18020159, 18020161, 18020162, 18020163, 18040003, 18040012, 18050001
18020110	Lower Cache. California.	Part of 18020104, 18020116, 18020162, 18020163
18020112	Sacramento-Upper Clear. California.	Part of 18010211, 18020005, 18020152, 18020154
18020113	Cottonwood Headwaters. California.	Part of 18010104, 18010211, 18010212, 18020152, 18020154, 18020155, 18020156
18020114	Upper Elder-Upper Thomes. California.	Part of 18010104, 18020115, 18020152, 18020155, 18020156
18020117	Upper Putah. California.	Part of 18010110, 18020116, 18020162, 18020163, 180250001, 18050002
18020118	Upper Cow-Battle. California.	Part of 18020003, 18020151, 18020153, 18020154, 18020155, 18020156
18020119	Mill-Big Chico. California.	Part of 18020003, 18020121, 18020153, 18020155, 18020156, 18020157, 18020158
18020120	Upper Butte. California.	Part of 18020121, 18020157, 18020158
18020124	Honcut Headwaters. California.	Part of 18020123, 18020125, 18020159
18020127	Upper Coon-Upper Auburn. California.	Part of 18020111, 18020126, 18020128, 18020161
18030008	Mill. California.	Part of 18030007, 18030010, 18030012
18030011	Upper Los Gatos-Avenal. California.	Part of 18030009, 18030012, 18040014, 18060002, 18060004, 18060005
18040004	Lower Calaveras-Mormon Slough. California.	Part of 18040003, 18040011, 18040012, 18040051
18040005	Lower Consumnes-Lower Mokelumne. California.	Part of 18020111, 18020163, 18040003, 18040011, 18040012, 18040013
18100200	Salton Sea. California.	Part of 15030104, 15030107, 18070202, 18070203, 18070302, 18070303, 18070304,

		18070305, 18100100, 18100201, 18100202, 18100203, 18100204
19030103	Western Aleutian, Alaska	To be added later? (No NHD data over extent)
19030104	Pribilof Islands. Alaska.	To be added later? (No NHD data over extent)
19030402	Farewell Lake. Alaska.	Part of 19020504, 19020601, 19030401, 19030405, 19030406, 19030407
19050101	St. Lawrence Island. Alaska.	To be added later? (No NHD data over extent)

New WBD

New WBD_HUC_8	
01050004	Passamaquoddy Bay-Bay of Fundy
02030203	Long Island Sound
02040303	Chincoteague
02040304	Eastern Lower Delmarva
02060001	Upper Chesapeake Bay
02080101	Lower Chesapeake Bay
02080111	Pokomoke-Western Lower Delmarva
03020301	White Oak River
03020302	New River
03040208	Coastal Carolina
03050209	Bulls Bay
03050210	St. Helena Island
03060110	Calibogue Sound-Wright River
04150308	Chateaugay-English
13030200	Mimbres
13070012	Lower Pecos
18020151	Cow Creek
18020152	Cottonwood Creek
18020153	Battle Creek
18020154	Clear Creek-Sacramento River
18020155	Paynes Creek-Sacramento River
18020156	Thomes Creek-Sacramento River
18020157	Big Chico Creek-Sacramento River
18020158	Butte Creek
18020159	Honcut Headwaters-Lower Feather
18020161	Upper Coon-Upper Auburn
18020162	Upper Putah
18020163	Lower Sacramento
18040051	Rock Creek-French Camp Slough
18100201	Whitewater River
18100202	Carrizo Creek
18100203	San Felipe Creek

18100204	Salton Sea
19010205	Lower Iskut
19010304	Taku River
19010500	Icy Strait-Chatham Strait
19020203	Prince William Sound
19020800	Cook Inlet
19030306	Nushagak Bay
19030406	Middle Fork Kuskokwim River
19030407	South Fork Kuskokwim River
19040206	Grass River
19050500	Kotzebue Sound

MODEL RELEASE 2.0

Poster and Schema available at <ftp://nhdftp.usgs.gov/model>

■ Changed name of dataset Hydrologic Units to WBD

■ Created new domain - ParameterName Domain tied to the ParameterName field in the NHDProcessingParameters table. (NOTE: Domain is string vs. integer coded values to keep format consistent with existing populated values.)

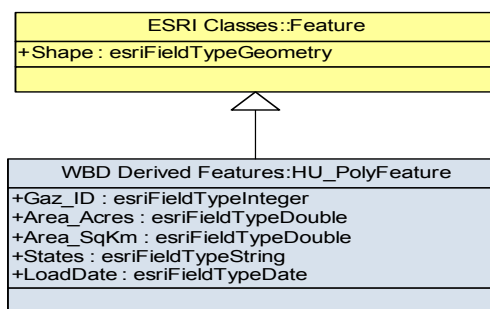
ParameterName Domain
FieldType = esriFieldTypeString
MergePolicy = esriMPTDefault
SplitPolicy = esriSPTDuplicate
Version = Version
Resolution = Resolution
Processing_Organization = Processing_Organization
SchemaVersion = SchemaVersion

■ Status domain, added new values (codes 14-19)

Status
FieldType = esriFieldTypeInteger
MergePolicy = esriMPTDefaultValue
SplitPolicy = esriSPTDefaultValue
Add Feature = 1
Modify Feature Attribute = 2
Modify Feature Geometry = 3
Delete Feature = 5
Delete Relationship = 6
Add Metadata = 7
Modify VAA = 8
Add Event = 9
Modify Event = 10
Delete Event = 11
Modify VAA All = 12
Add Relationship = 13
Add Metadata All (historic) = 14
Add FeatureToMetadata All(historic) = 15
Add FeatureToMetadata Relationship = 16
Create External Crosswalk = 17
Modify External Crosswalk = 18
Process External Crosswalk All = 19

- Hydrologic Units Dataset, replaced existing feature classes with new WBD HU_* feature classes.

Derived Polygon Classes



- Brought in HU_Type domain.

«CodedValueDomain»HU_Type Domain
+FieldType : esriFieldType = esriFieldTypeString
+MergePolicy : <unspecified> = esriMPTDefaultValue
+SplitPolicy : <unspecified> = esriSPTDuplicate
+Standard : esriFieldTypeString = S
+Closed Basin : esriFieldTypeString = C
+Frontal : esriFieldTypeString = F
+Multiple Outlet : esriFieldTypeString = M
+Water : esriFieldTypeString = W
+Island : esriFieldTypeString = I
+Unclassified : esriFieldTypeString = U

- To Status domain, added 3 new categories:

'Modify Ext Crosswalk' (code = 14)

'Modify Ext Crosswalk All' (code = 15)

'Add FeatureToMeta Relationship' (code=16)

- To NHDStatus table, added field Permanent_Identifier (char, 40)

- To all feature classes and object tables where field 'ComID' exists, added field 'Permanent_Identifier' field (char, 40) with constraint 'AllowNulls = False'.

NHDArea

NHDFlowline (Also add field WBArea_Permanent_Identifier)

NHDLine

NHDPoint

NHDWaterbody

NHDAreaEventFC (Also added field Feature_Permanent_Identifier)

NHDLineEventFC (Also added field Feature_Permanent_Identifier)

NHDPointEventFC (Also added field Feature_Permanent_Identifier)

NHDFeatureToMetadata

NHDFlowlineVAA

NHDSReachCode_ComID

NHDVerticalRelationship (Also added fields Above_Permanent_Identifier, Below_Permanent_Identifier)

■ In addition, other Permanent_Identifier fields were added as follows:

NHDFlow

From_Permanent_Identifier

To_Permanent_Identifier

NHDMetadata

Meta_ProcessID (from BP common)

NHDSourceCitation

Source_DatasetID (from BP common)

Meta_ProcessID (from BP common)

NHDFeatureToMetadata

Meta_ProcessID (from BP common)

■ To NHDFlow table, deleted field 'ToComIDMeas'

■ Added ExternalIDCrosswalk table (from BP common)

Meta Objects::ExternalIDCrosswalk{ConfigKeyword = META}
+Permanent_Identifier : esriFieldTypeString
+ExternalID : esriFieldTypeString
+ExternalIDName : esriFieldTypeString
+ExternalIDOriginator : esriFieldTypeString
+ExternalIDEntryDate : esriFieldTypeDate

(field lengths - 40, 40, 50, 130)

- To PointEventType Domain, added three more categories

OLD

Point Event Type
FieldType = esriFieldTypeInteger
MergePolicy = esriMPTDefaultValue
SplitPolicy = esriSPTDuplicate
Gaging Station = 1
Dam = 2
Divergence Structure = 3

NEW

Point Event Type
FieldType = esriFieldTypeInteger MergePolicy = esriMPTDefaultValue SplitPolicy = esriSPTDuplicate Gaging Station = 1 Dam = 2 Divergence Structure = General = 3 Divergence Structure = Withdrawing = 4 Divergence Structure = Contributing = 5 Water Quality Station = 6

■ To ChangeCode Domain, deleted '(historic)' in PP category description

ChangeCode Domain
FieldType = esriFieldTypeString MergePolicy = esriMPTDefaultValue SplitPolicy = esriSPTDuplicate 11 Old reach to new reach = 11 1P Old reach to part of new reach = 1P P1 Part of old reach to new reach = P1 A Add new reach = A D Delete old reach = D PP Part of old reach to part of new reach = PP 1M (historic) Old reach split to multiple new reaches = 1M M1 (historic) Multiple old reaches merged to single new reach = M1

■ To the following relationships, changed Origin Primary Key / Origin Foreign Key values from ComID to Permanent_Identifier:

NHDAreaToMeta

NHDFlowlineToMeta

NHDLineToMeta

NHDPointToMeta

NHDWaterbodyToMeta

NHDAreaEventFCToMeta

NHDLineEventFCToMeta

NHDPointEventFCToMeta

■ To the following relationships, changed Origin Primary Key / Origin Foreign Key values from DuuID to Meta_ProcessID:

NHDMetaToFeature

NHDMetadataHasSourceCitation

TOOL/TEMPLATE MATRIX

Tools	ArcGIS 9.2 TA v1 Model 1.06	ArcGIS 9.2 TA v1 Model 2.0	ArcGIS 9.3 SP1 TA v1 Model 1.06	ArcGIS 9.3.1 TA v1 Model 1.06	ArcGIS 9.3 SP1 TA v1 Model 2.0	ArcGIS 9.3.1 TA v1 Model 2.0	Format
NHDGeoEdit 3.2.3	4/10/09	4/10/09	x	x	x	x	Pgdb
NHDGeoEdit 3.2.3 64 bit	x	x	x	x	x	x	Pgdb
NHDGeoEdit 3.3.3	x	x	x	x	6/30/10	6/30/10	Pgdb
NHDGeoEdit 3.3.3 64 bit	x	x	x	x	6/30/10	6/30/10	Pgdb
NHD Flow Check	5/19/10	5/19/10	5/19/10	5/19/10	5/19/10	5/19/10	Pgdb
NHD Toolbox	3/24/10	3/24/10	3/24/10	3/24/10	3/24/10	3/24/10	Pgdb
NHDUtilities	6/04/10	6/04/10	6/04/10	6/04/10	6/18/10	6/18/10	Pgdb
NHDUtilities 64 bit	x	x	x	6/04/10	6/18/10	6/18/10	Pgdb
Conflation	4/22/10	4/22/10	4/22/10	4/22/10	4/22/10	4/22/10	Pgdb
Templates							
9.2 Pgdb Template	3/08/09	5/26/09	x	x	x	x	Pgdb
9.2 Pgdb Template (Alb)	3/20/09	6/14/09	x	x	x	x	Pgdb
9.3 Pgdb Template	x	x	7/16/09	7/16/09	5/26/10	5/26/10	Pgdb
9.3 Pgdb Template (Alb)	x	x	7/16/09	7/16/09	5/26/10	5/26/10	Pgdb

Note, All tools/templates listed above are available for download from:

http://webhosts.cr.usgs.gov/steward/scripts/st2_software.pl

