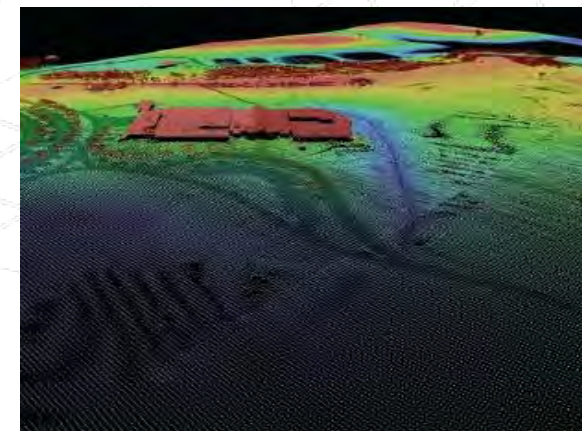
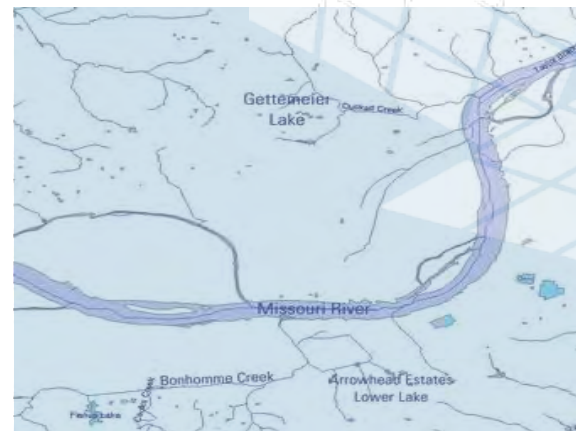
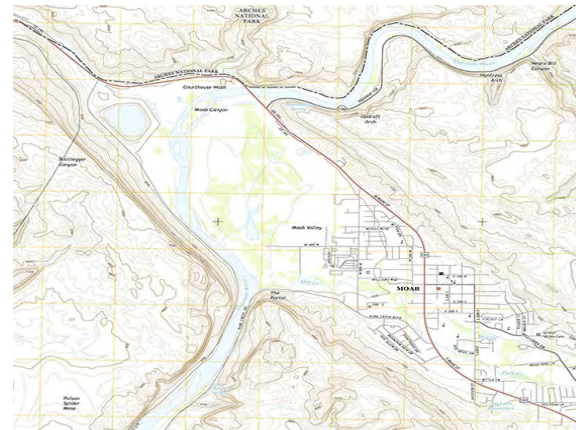




Update and Maintaining the NHD Lightning Talks

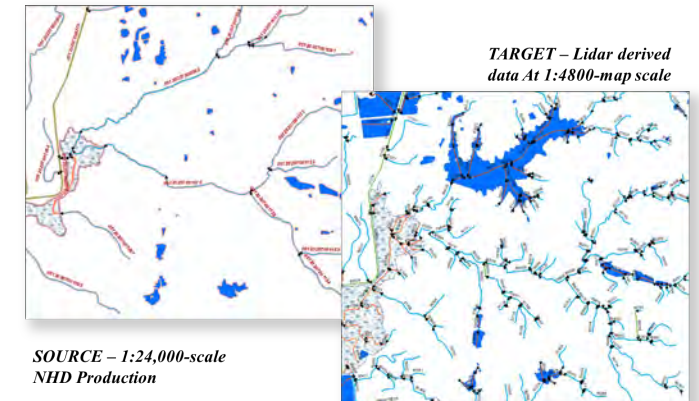
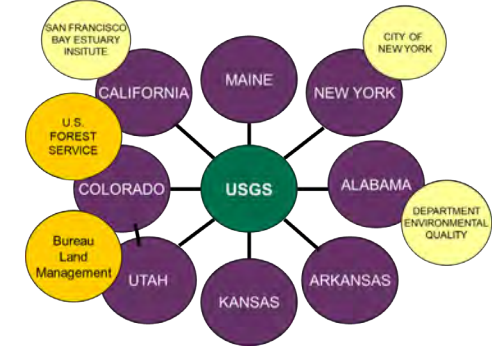


Joel Skalet, National NHD POC
US Geological Survey

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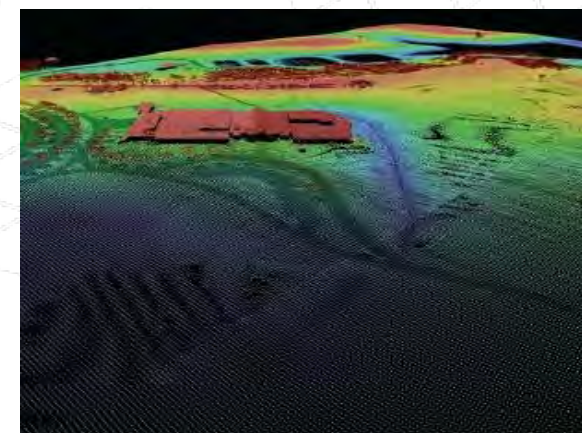
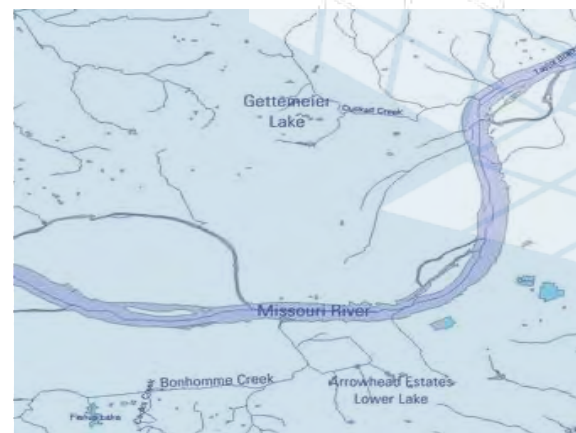
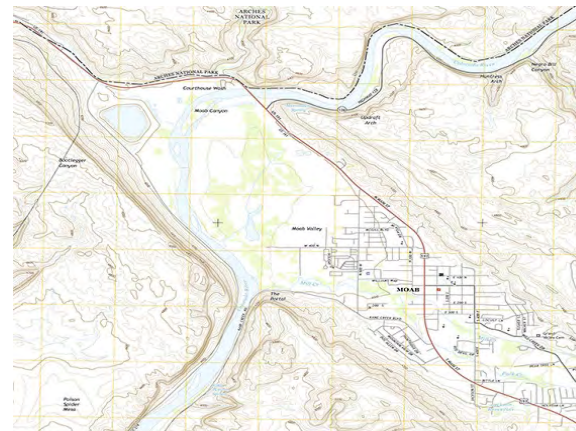
Outline

- Stewardship of the National Hydrography Dataset
- Markup Application for the National Hydrography Dataset
- GeoConflation Process and the National Hydrography Dataset





Stewardship of the National Hydrography Dataset

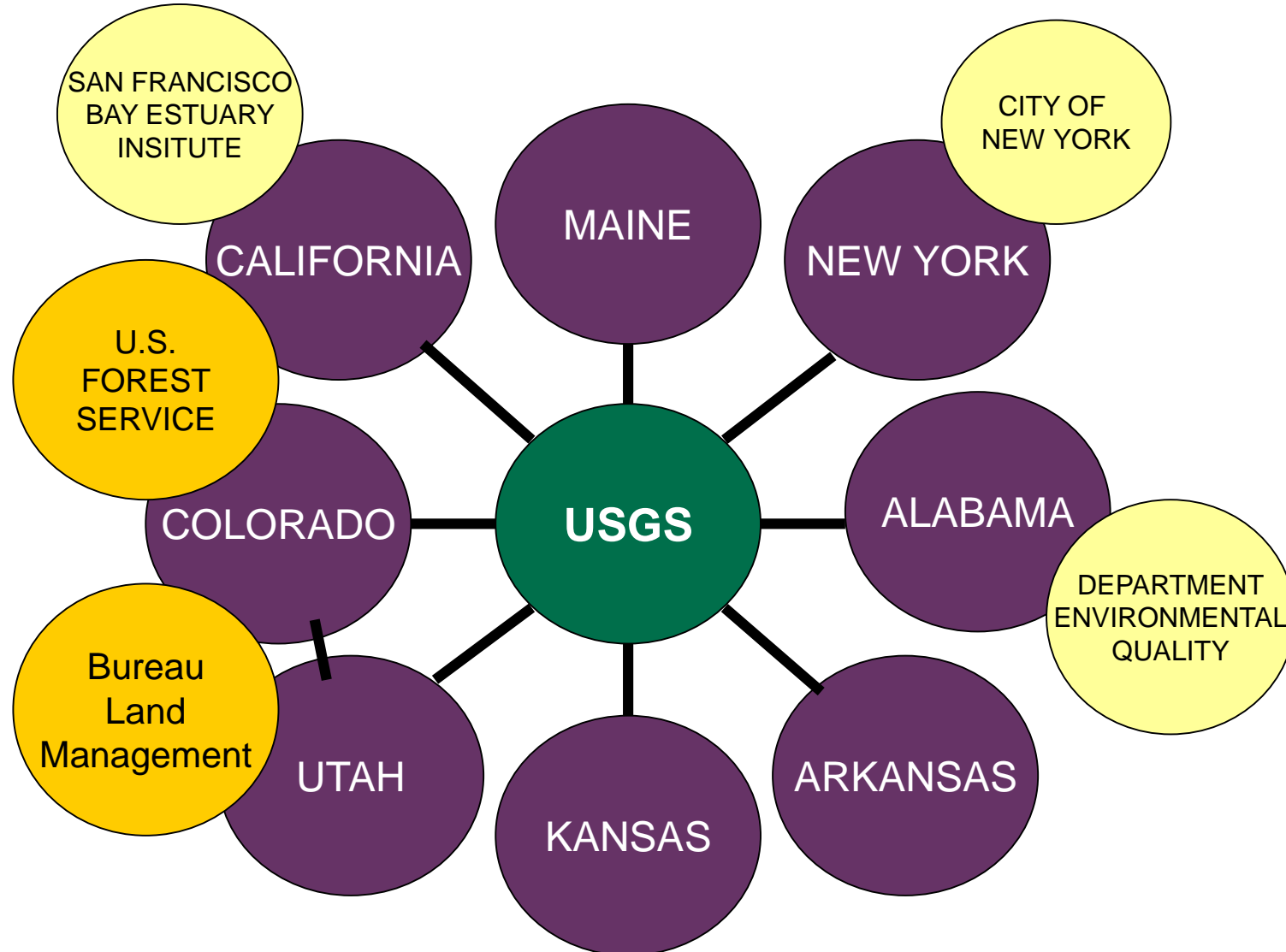


AWRA Spring Conference
March 23 – 25, 2020

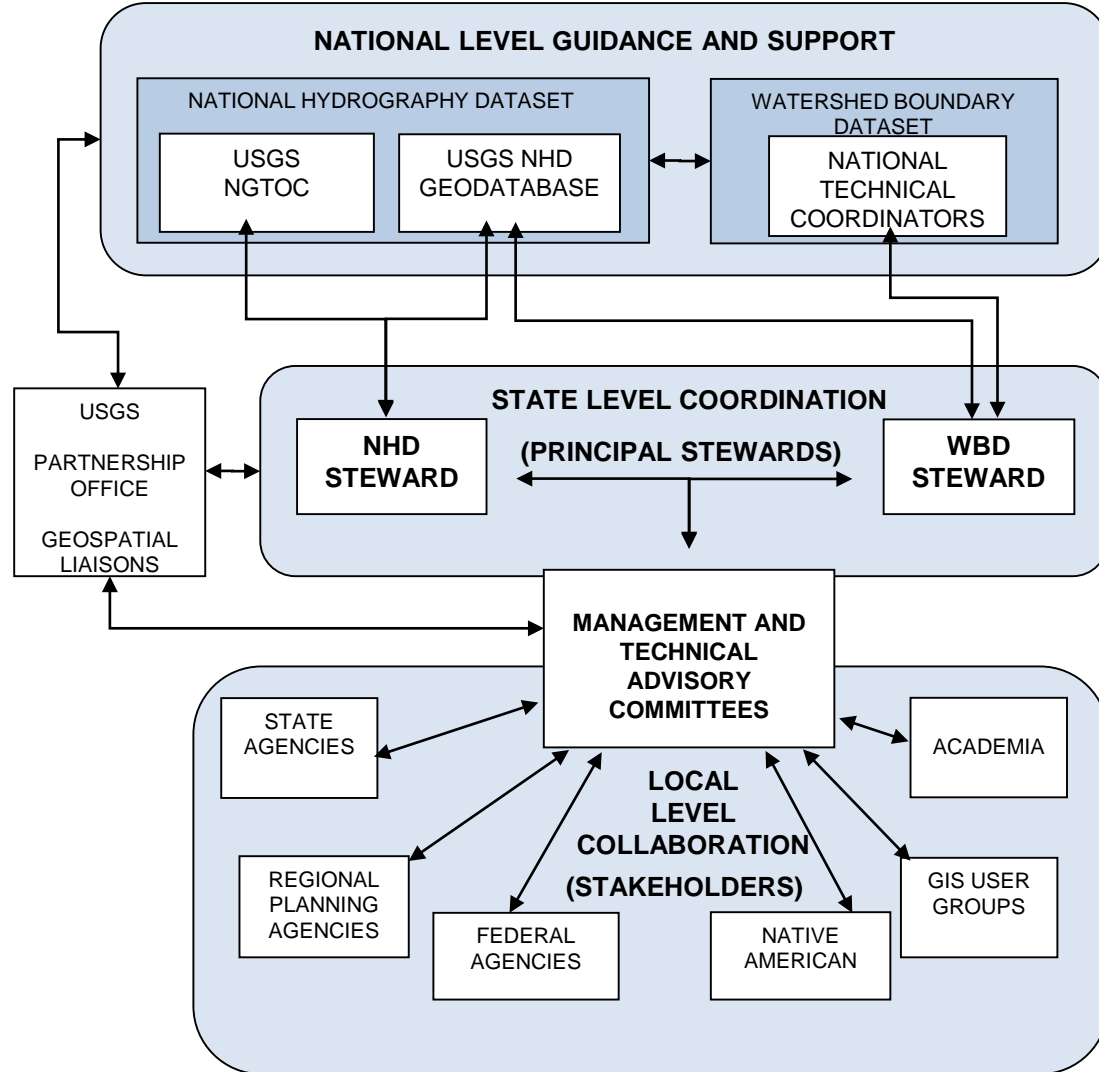
Joel Skalet, National NHD POC
US Geological Survey

+

Stewardship Model



+ Typical Stewardship Model





Communication

Hydrographic Data Community

Dashboard > Hydrographic Data Community > Hydrographic Data Community

Browse > Paul J Kimsey > Search this space

NHD Core Site - Public
http://nhd.usgs.gov

Stewardship Page - Partners
http://usgs-mrs.cr.usgs.gov/stewweb/

Navigation Sidebar

- Who we are and what we do...
 - Important Announcements Concerning the Hydrography Datasets
 - Hydro Community Events (Calendar)
- Current USGS Hydrographic Project Information
- Technical Exchange Meeting (TEM) Information
 - Partner Developed Applications for Hydro
- National Hydrography Dataset (NHD) Community
- Watershed Boundary Dataset (WBD) Community
- Hydrography Event Management (HEM) Tools
- GeoConflation (NHDGC) Community
- MyUSGS Community Contacts
- HDC Sandbox for Managers and Admins

Hydrographic Data Community

2 Added by [Sibert H Peterson](#), last edited by [David S Anderson](#) on Jun 09, 2014 (view change)

Navigate the HDC

Search

- Who we are and what we do...
- Important Announcements Concerning the Hydrography Datasets
- Hydro Community Events (Calendar)
- Current USGS Hydrographic Project Information
- Technical Exchange Meeting (TEM) Information
- Partner Developed Applications for Hydro
- National Hydrography

Welcome to the Hydrographic Data Community!

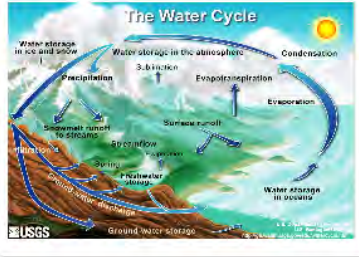
This community consists of information regarding the U.S. Geological Survey's National Hydrography Dataset (NHD) and Watershed Boundary Dataset (WBD). These two databases in conjunction with other available tools and linkable data create a highly useful geographic information system of the nation's surface waters and drainage areas.

The National Hydrography Dataset (NHD) is the surface water component of *The National Map* ([Information on The National Map - http://nationalmap.gov/](#)). The NHD is a digital vector dataset used by geographic information systems (GIS). It contains features such as lakes, ponds, streams, rivers, canals, dams and streamgages. These data are designed to be used in general mapping (cartography) and in the analysis of surface-water systems and their drainage areas.

[USGS NHD Fact Sheet](#)

[USGS NHD Linear Referencing Fact Sheet](#)

The Watershed Boundary Dataset (WBD) defines the areal extent of surface water drainage to a point, accounting for all land and surface areas. Watershed Boundaries are determined solely upon science-based hydrologic principles, not favoring any administrative boundaries or special projects, nor particular program or agency. The intent of defining Hydrologic Units



Links to Product Blogs:

- [NHD Product Blog](#)
- [WBD Product Blog](#)
- [HEM Product Blog](#)
- [GCT Product Blogs](#)

Powered by a free Atlassian Confluence Open Source Project License granted to ScienceBase: data and information management for scientists. Evaluate Confluence today.
This Confluence installation runs a Free Gliffy License - Evaluate the Gliffy Confluence Plugin for your Wiki

Powered by Atlassian Confluence 4.3.5, the Enterprise Wiki - Report a bug - Atlassian News

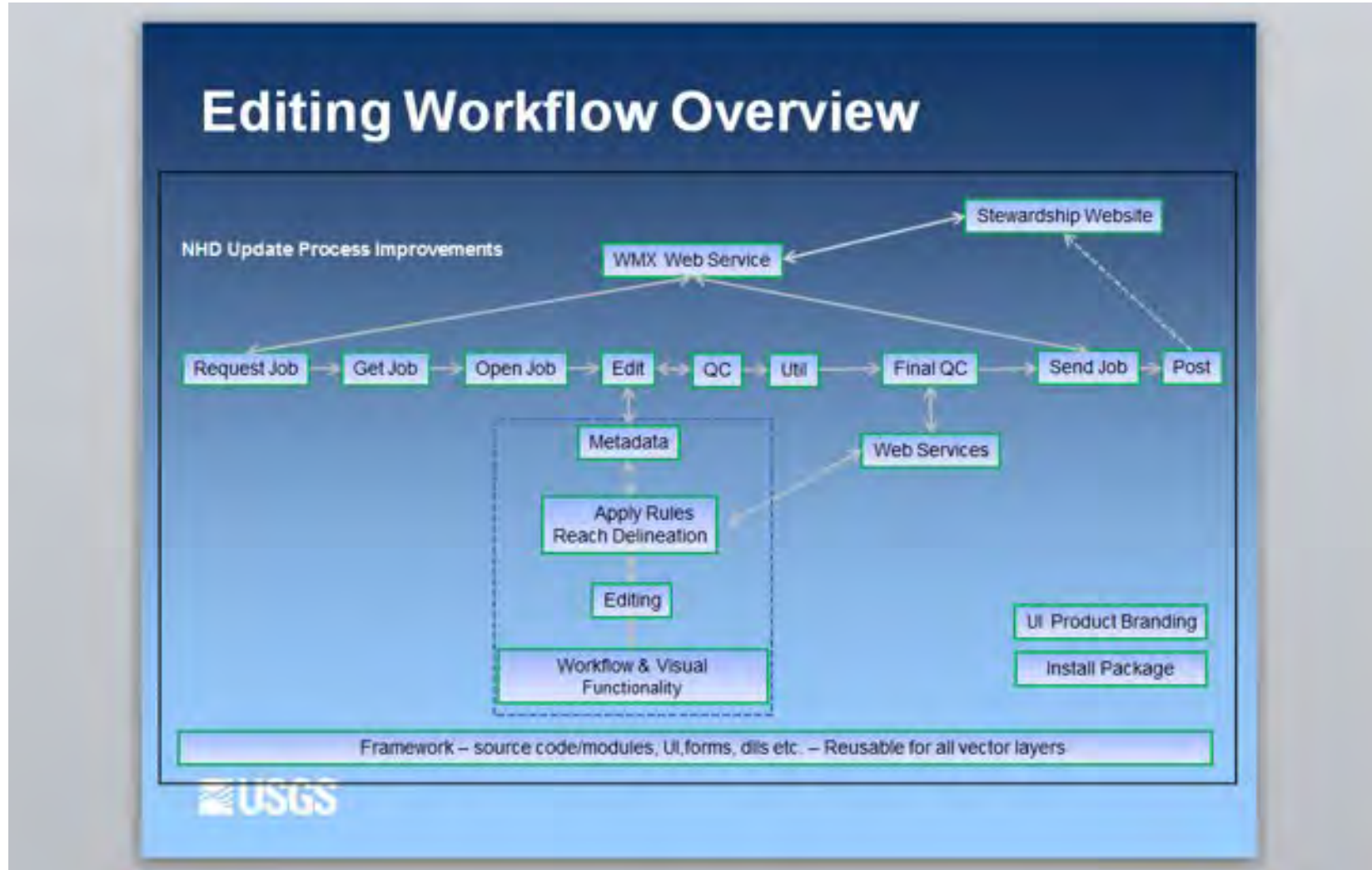


+ Editing Tools and Utilities

- Markup web tool
- GeoConflation
- NHD Update
- NHD Utilities
- WBD Update
- WBD Web Application
- Hydro Event Management (HEM) tool
- Generalization tool
- Compare tool

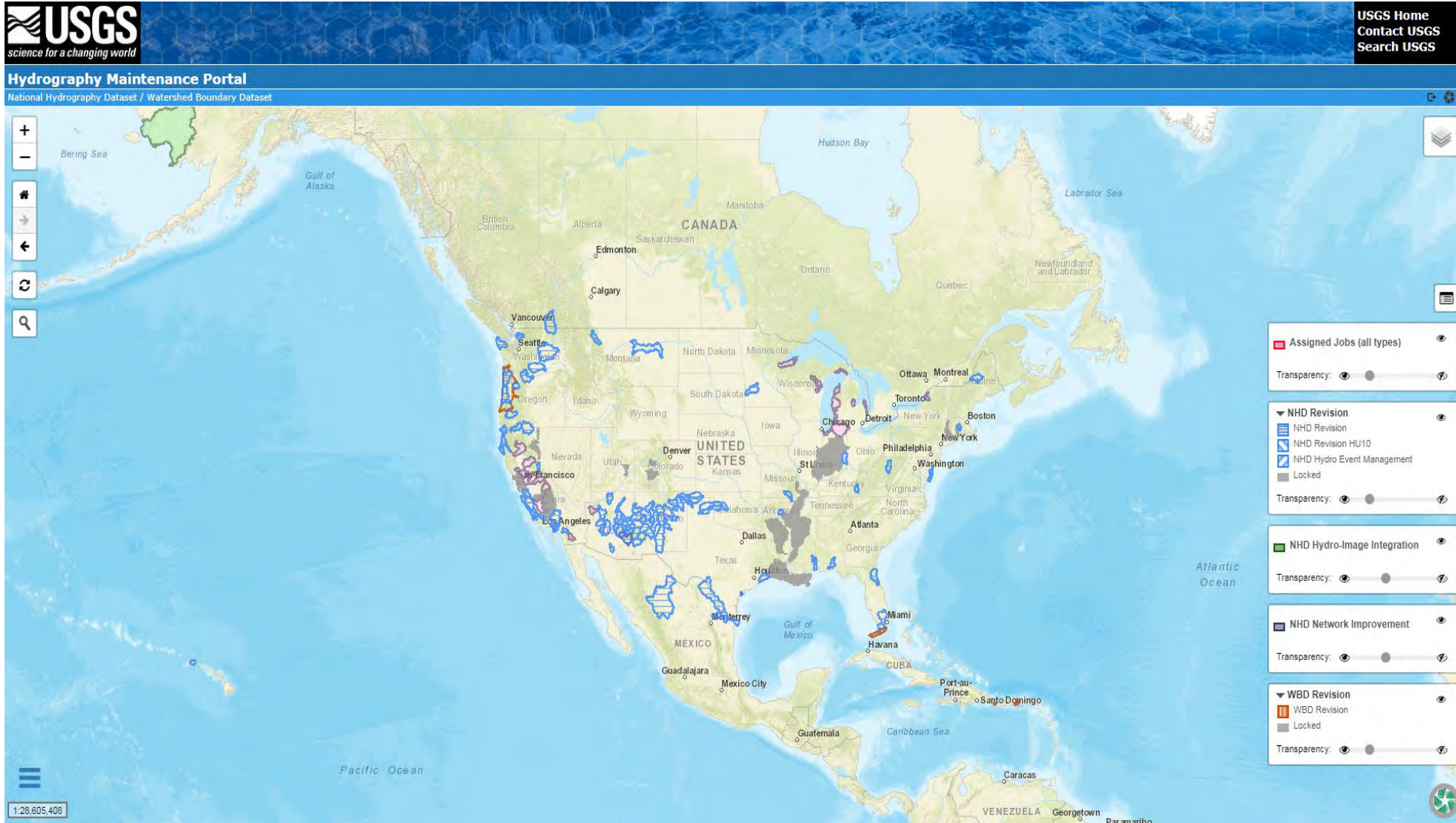
+

NHD Update Process - Editing Workflow





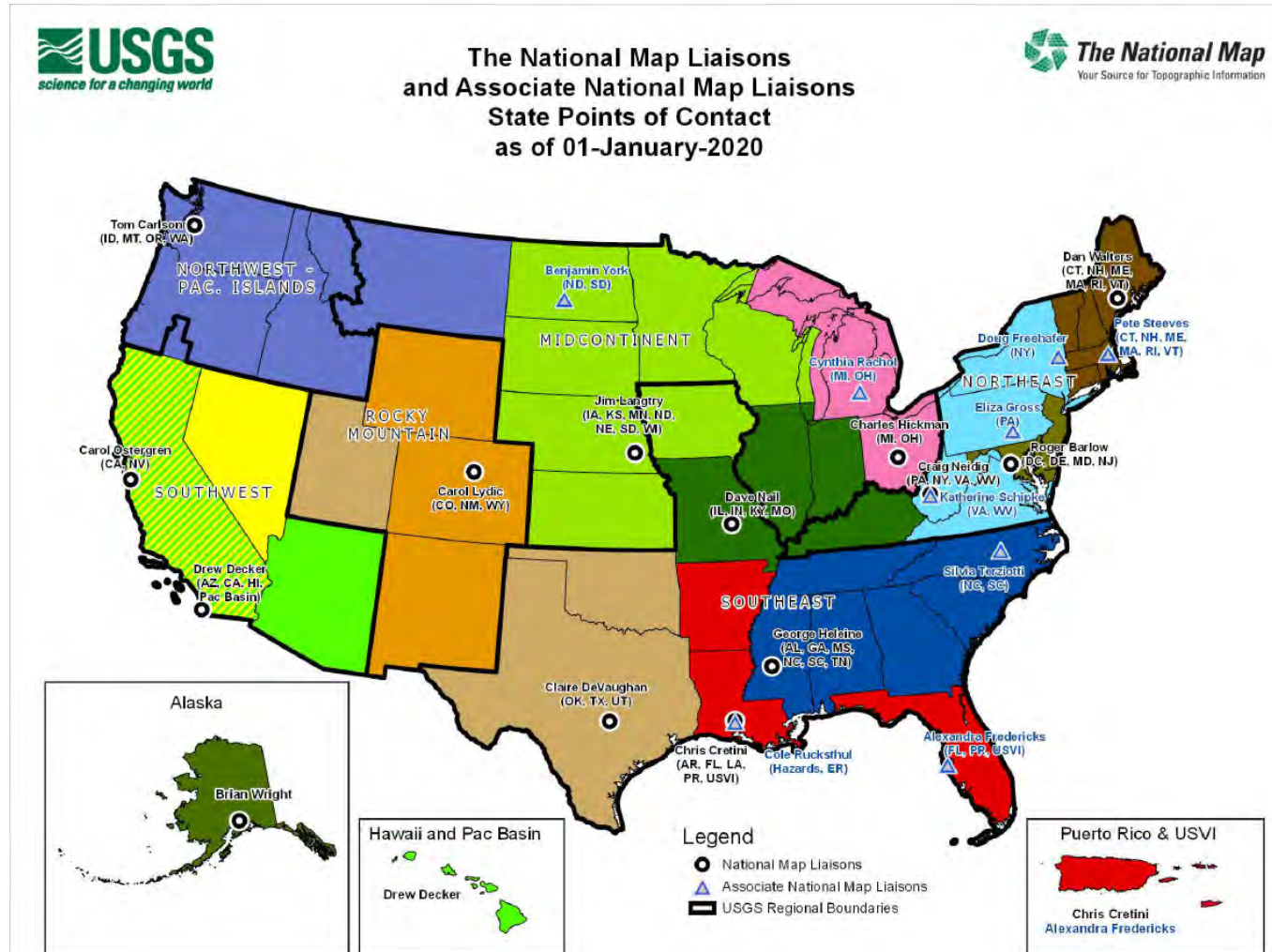
Hydro Maintenance Portal (HMP)





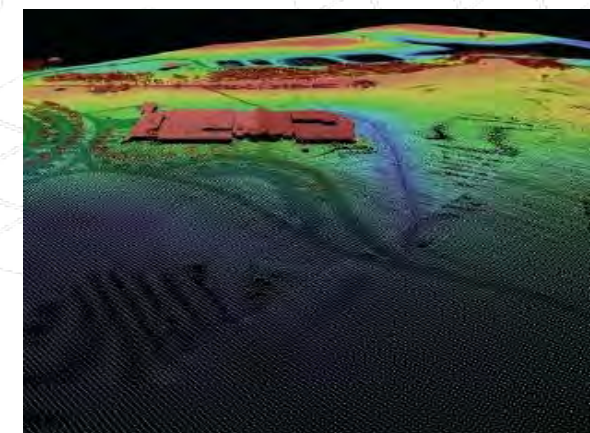
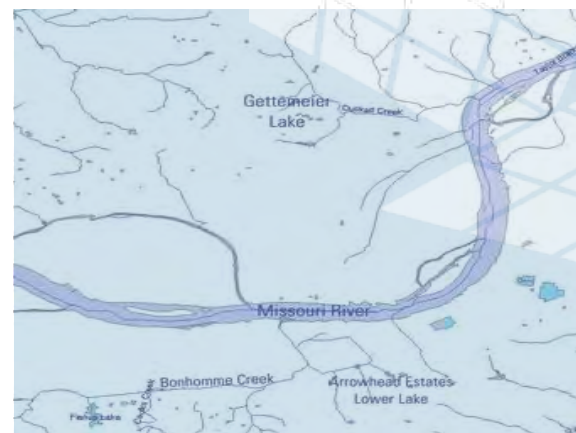
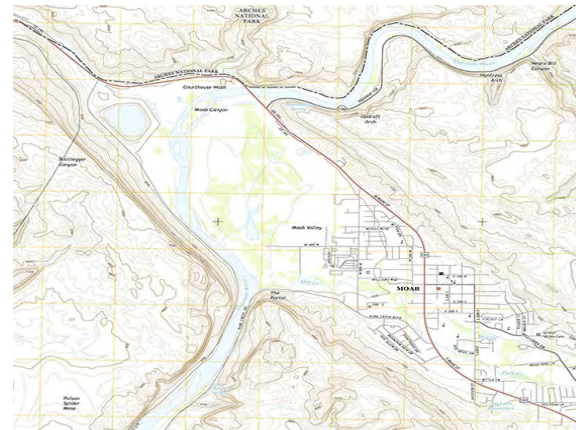
The National Map Liaisons

<https://liaisons.usgs.gov/geospatial/>





Markup Application for the National Hydrography Datasets



+ Markup Application

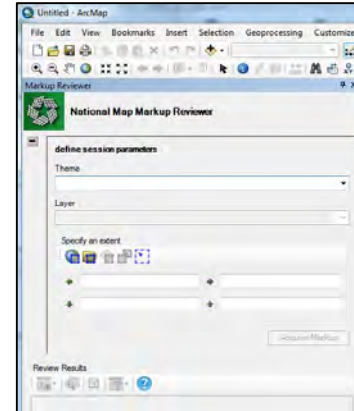
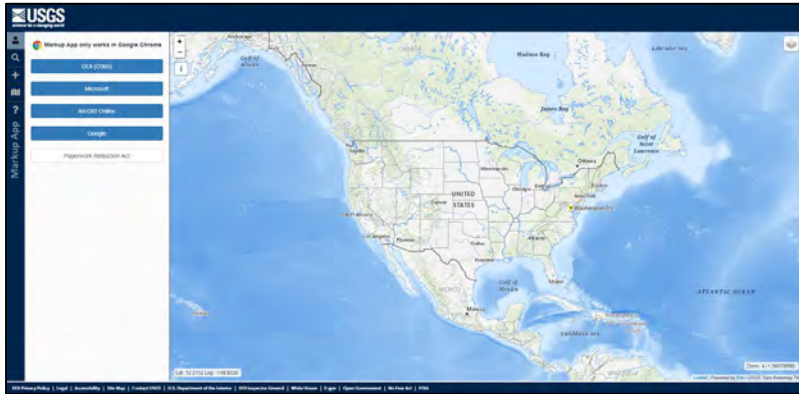
<https://edits.nationalmap.gov/markup-app>

- Suggest edits to NHD, WBD, and NHDPlus HR
- Requirements: Gmail, AGOL, or MS Office and Google Chrome

The screenshot displays the USGS Markup Application interface. The top left corner features the USGS logo with the tagline "science for a changing world". Below the logo, a notification states "Markup App only works in Google Chrome". The sidebar on the left contains several blue buttons: "DOI (O365)", "Microsoft", "ArcGIS Online", and "Google". Below these buttons is a white box labeled "Paperwork Reduction Act". The main area is a map of the United States, showing state boundaries and major cities. The map is centered on the United States, with labels for "CANADA", "MEXICO", "HAWAII", "ATLANTIC OCEAN", and "CARIBBEAN SEA". The map includes a zoom control in the top right corner and a status bar at the bottom showing "Lat: 12.2112 Lng: -149.8535" and "Zoom: 4 (1:36978596)". The footer of the application contains a navigation menu with links for "DOI Privacy Policy", "Legal", "Accessibility", "Site Map", "Contact USGS", "U.S. Department of the Interior", "DOI Inspector General", "White House", "E-gov", "Open Government", "No Fear Act", and "FOIA".



Markup Application and Reviewer



Users: General public, NHD and WBD users, academia, etc.

Purpose:

- Viewing NHD, NHDPlus HR, WBD and submitted markups.
- Creating new markups.

Access: Public access.

Users: trained NHD and WBD partners and internal editors **only**.

Purpose:

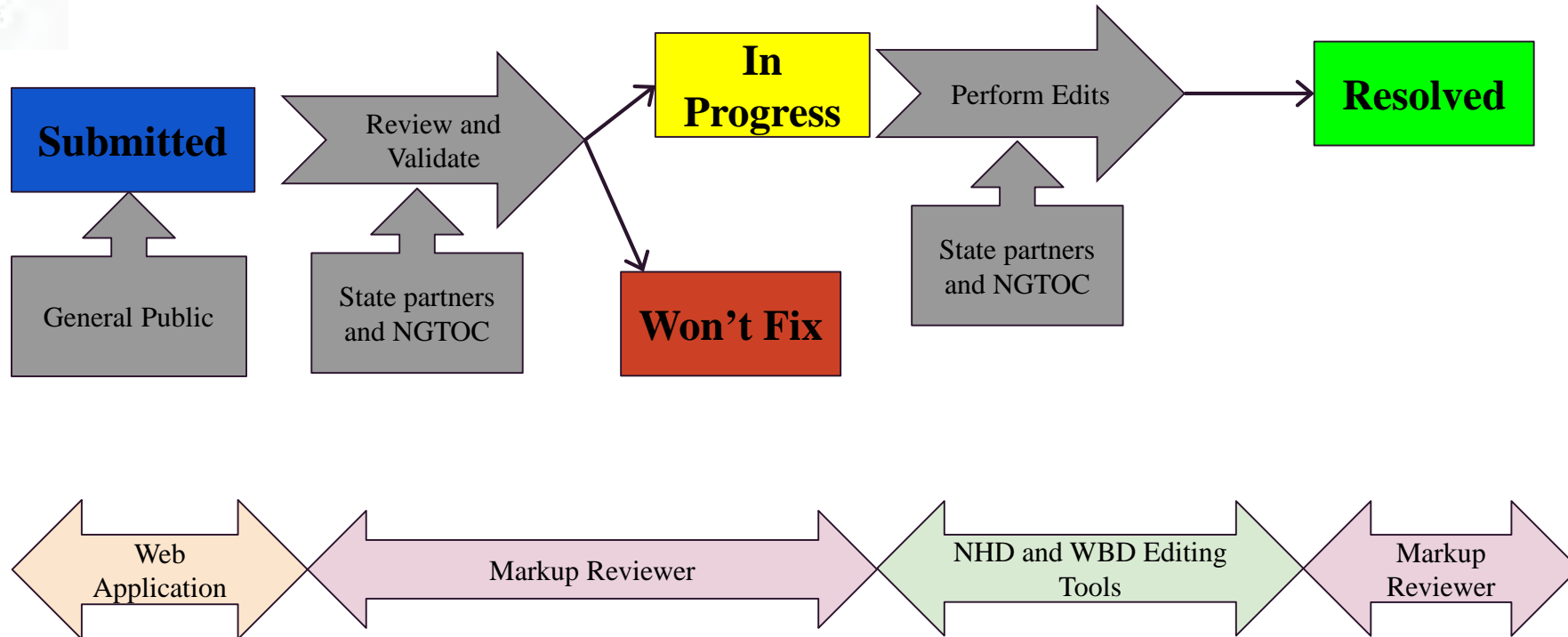
- View markups submitted through web application.
- Update markup status.

Access: Restricted access for download on Hydrographic Data Community



Markup Life Cycle: Validation/Editing

Markup Status Field Change: Who, where, how?

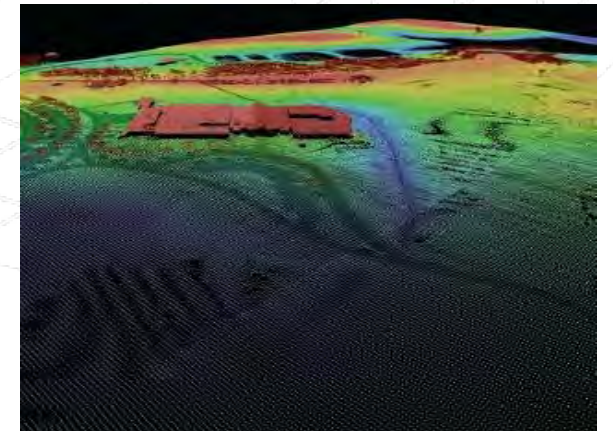
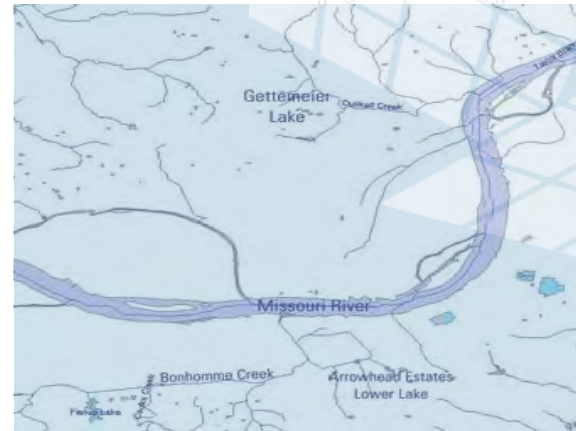
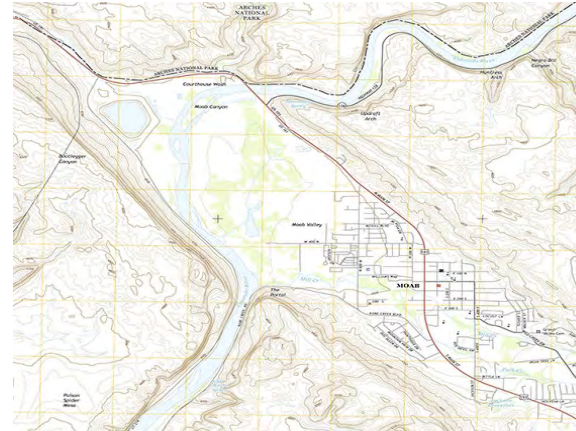


+ Markup Resources

- NHD Website - NHD Tools
- Hydrographic Data Community (HDC) - Markup Community
- The Markup Application lesson video can be found on Youtube:
 - <https://www.youtube.com/watch?v=4hnvgPZxY5Q>
- Markup App User Guide
- Markup Reviewer User Guide
- Questions and Training requests: markup@usgs.gov



GeoConflation Process and the National Hydrography Dataset

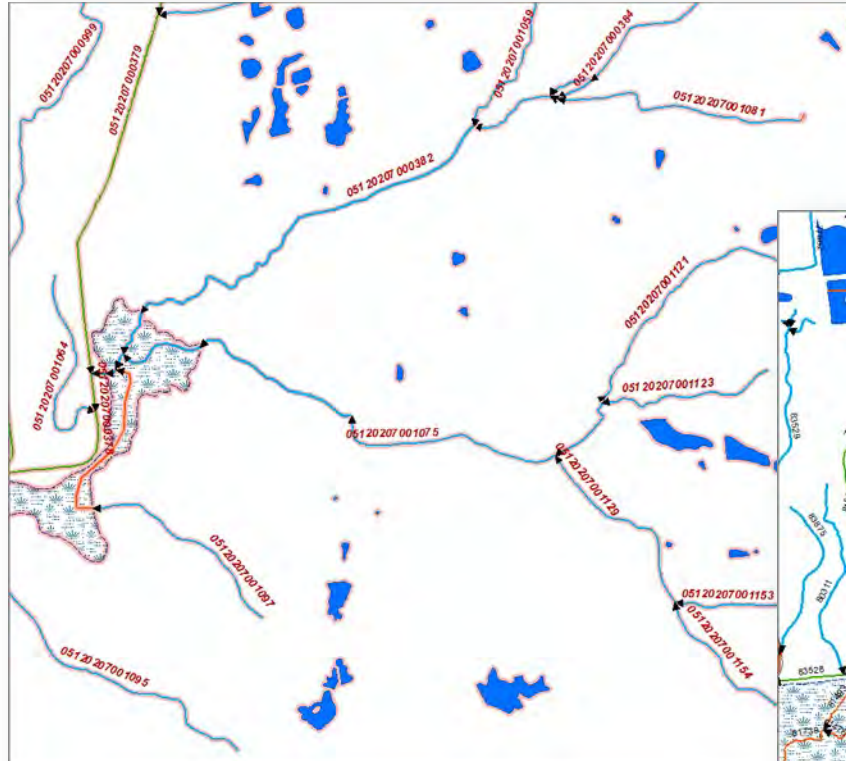


+ Definition & Purpose of Conflation

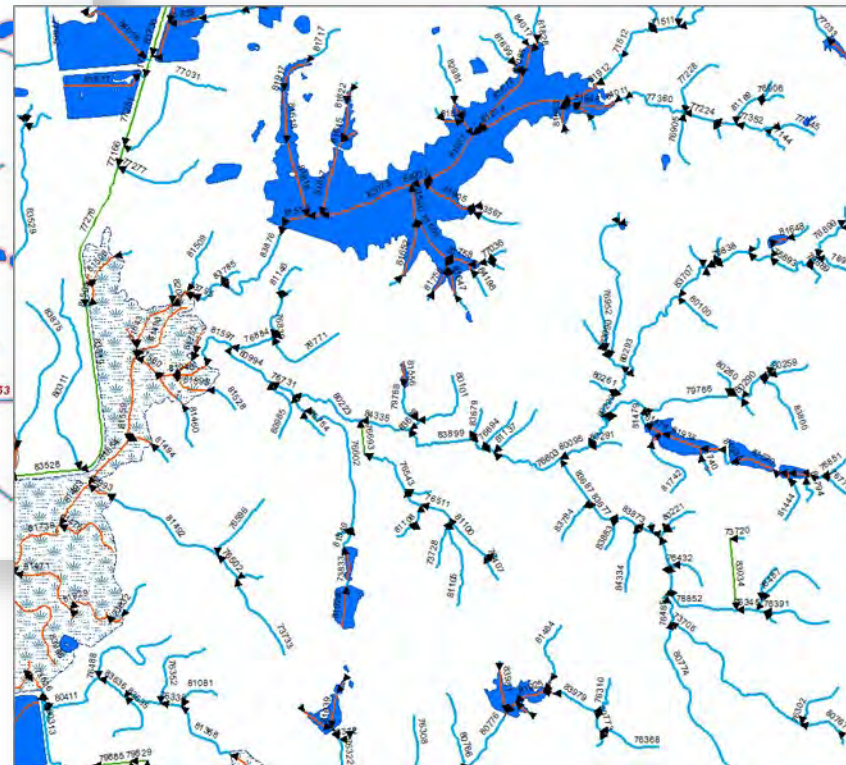
- Conflation is a set of processes that spatially compares geometry of two data sets and transfers attributes of one to the other; thereby creating a dataset with differing geometry and transferred attributes.
 - *USGS GeoConflation takes the process one step further by implementing the NHD model requirements and enforcing certain characteristics to the data.*
- Purpose
 - Designed specifically for the NHD database schema
 - *Not meant for small number of updates but for mass replacements*
 - Importing new elevation-derived hydrography into the NHD



Conflation

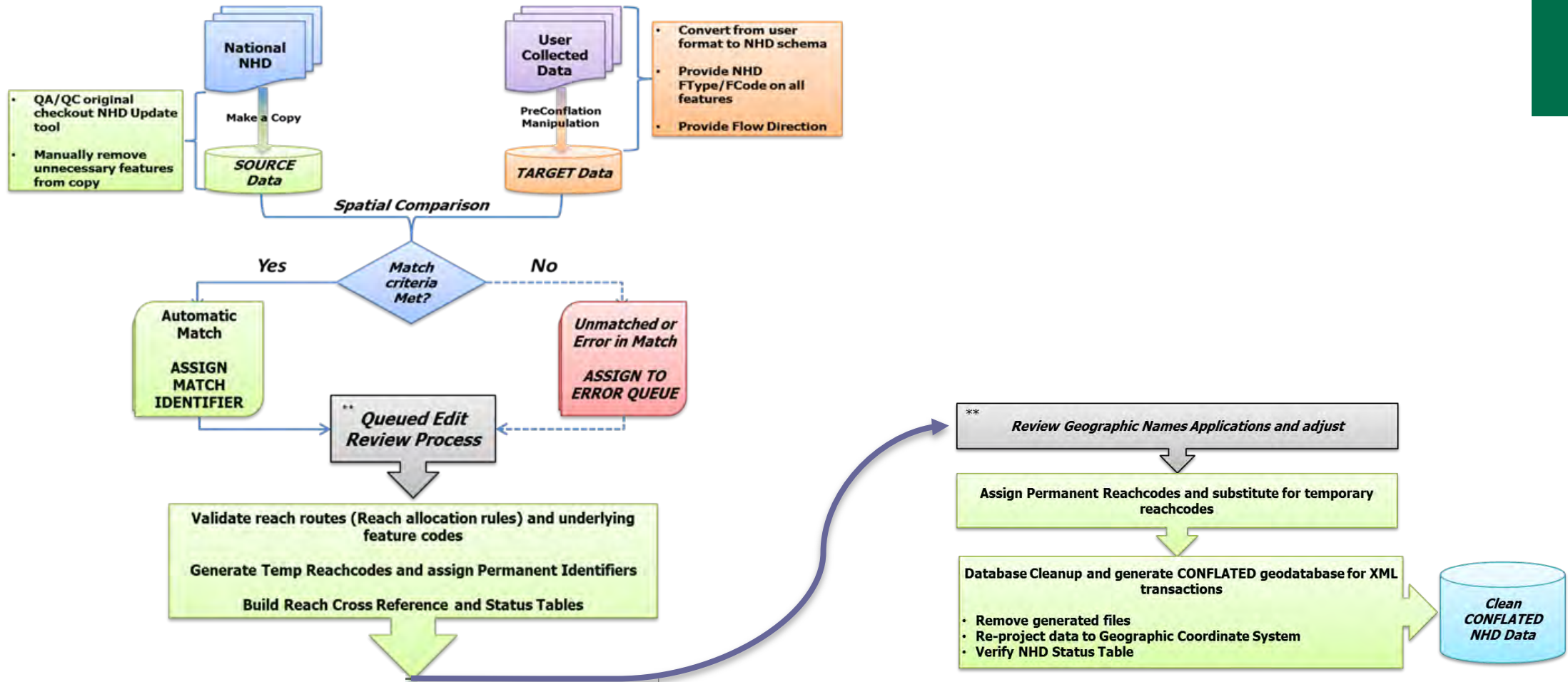


TARGET – Lidar derived data At 1:4800-map scale



SOURCE – 1:24,000-scale NHD Production

Overview: Simplified GeoConflation Process





Key Points to Remember About GeoConflation

These are vital to understand moving into the process

- Two feature classes are conflated: **NHDFlowline** and **NHDWaterbody** (reaches and GNIS carried over)
- Three feature classes are direct (complete) replacement: **NHDLine**, **NHDPoint**, and **NHDArea** (no attributes carried over)
- Direct replacement means **all SOURCE features are retired and all TARGET features are added.**
- Certain tables are generated and appended to the original reachcode data - **NHDReachCodeMaintenance** and **NHDReachCrossReference**
- If a feature exists in the SOURCE (copy of NHD production data) but not in the TARGET, the feature is 'retired' and will no longer be extracted for future distributions.
- If a feature is in the TARGET (collected data) and not in the SOURCE, it is added as a new feature.
- If the feature is matched between SOURCE and TARGET it will contain conflated data and be propagated throughout the process.



GeoConflation Preparation

The screenshot shows the ArcMap interface with a map of a watershed area. The Table of Contents on the left lists several layers, including Hydrography (NHDPoint, NHDLine, NHDFlowline, NHDWaterbody, NHDArea) and WBD (WBDHU8, WBDHU12, WBDHU10). The main map window displays a purple-shaded watershed area with a network of lines representing hydrographic features.

Below the map, three data tables are displayed:

Permanent_Identifier	FDate	Resolution	GNIS_ID	GNIS_Name	LengthKM	ReachCode	FlowDir	WBArea_Permanent_Identifier	FType	FCode	MainPath	InNetwork	VisibilityFilter	Shape_Length
	12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	WithDigitized	<Null>	CanalDitch	Canal Ditch	Unspecified	<Null>	Unspecified	23.785076
	12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	WithDigitized	<Null>	CanalDitch	Canal Ditch	Unspecified	<Null>	Unspecified	194.045233
	12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	WithDigitized	<Null>	CanalDitch	Canal Ditch	Unspecified	<Null>	Unspecified	16.658016
	12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	WithDigitized	<Null>	CanalDitch	Canal Ditch	Unspecified	<Null>	Unspecified	33.613277

OBJECTID*	Shape*	Permanent_Identifier	FDate	Resolution	GNIS_ID	GNIS_Name	AreaSqKm	Elevation	FType	FCode	VisibilityFilter	Shape_Length	Shape_Area
1	Polygon Z		12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	CanalDitch	Canal Ditch	Unspecified	13811.608796	114176.729881
2	Polygon Z		12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	StreamRiver	Stream/River: Hydrographic Category = Perennial	Unspecified	1097059.460158	11828573.685667
3	Polygon Z		12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	CanalDitch	Canal Ditch	Unspecified	1378.184038	33198.374814

OBJECTID*	Shape*	Permanent_Identifier	FDate	Resolution	GNIS_ID	GNIS_Name	AreaSqKm	Elevation	ReachCode	FType	FCode	VisibilityFilter	Shape_Length	Shape_Area
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3	Polygon Z		12:00:00 AM	0	<Null>	<Null>	<Null>	<Null>	<Null>	LakePond	Lake/Pond: Hydrographic Category = Perennial	Unspecified	291.603988	3835.223172

961661.546 -90540.398 Meters



Questions?



Contact information:

- ❖ NHD & Stewardship: nhd@usgs.gov
- ❖ Markup: markup@usgs.gov
- ❖ GeoConflation: nhd-gct@usgs.gov



AWRA Spring Conference
March 23 – 25, 2020

Alex Kaufman, NHD Production Operations
Joel Skalet, National NHD POC
US Geological Survey