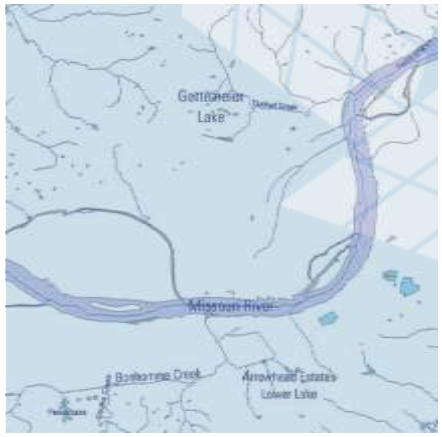
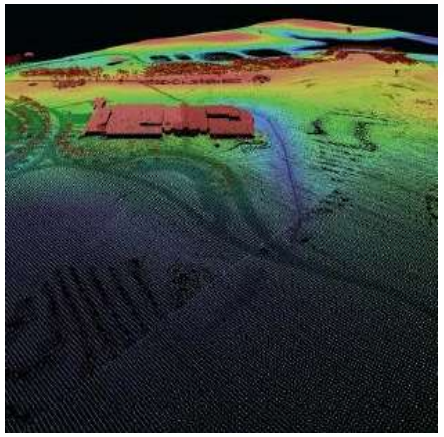
USGS Announcements:

- 3D Nation Elevation Requirements and Benefits Study
- NHDPlus HR Beta Quality Control Volunteers





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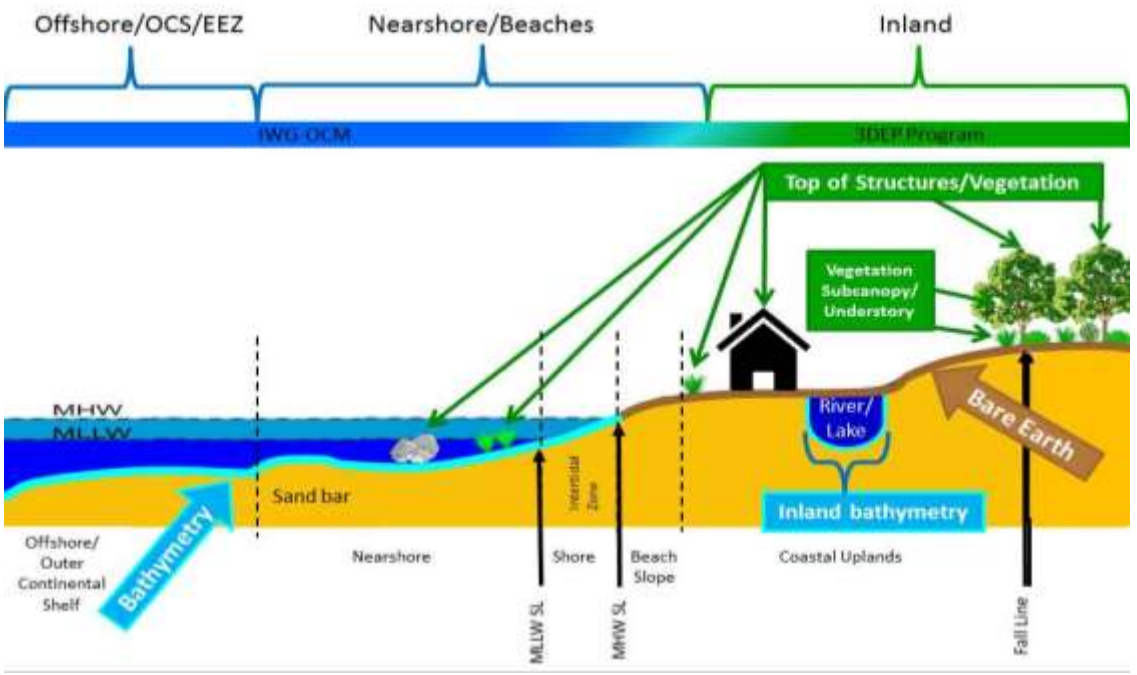
FGDC Coordination Group meeting

Gita Urban-Mathieux
October 3, 2017

3D Nation Elevation

Requirements and Benefits Study - Goals

- Understand inland, nearshore and offshore bathymetric data requirements and benefits
- Understand how requirements and benefits dovetail in the nearshore coastal zone
- Plan for the next round of 3DEP after completion of nationwide coverage
- Gather technology-agnostic user information to be able to assess new technologies against requirements and identify the tradeoffs between different approaches
- Improve our understanding of needs to guide development of the next generation of 3DEP products and services



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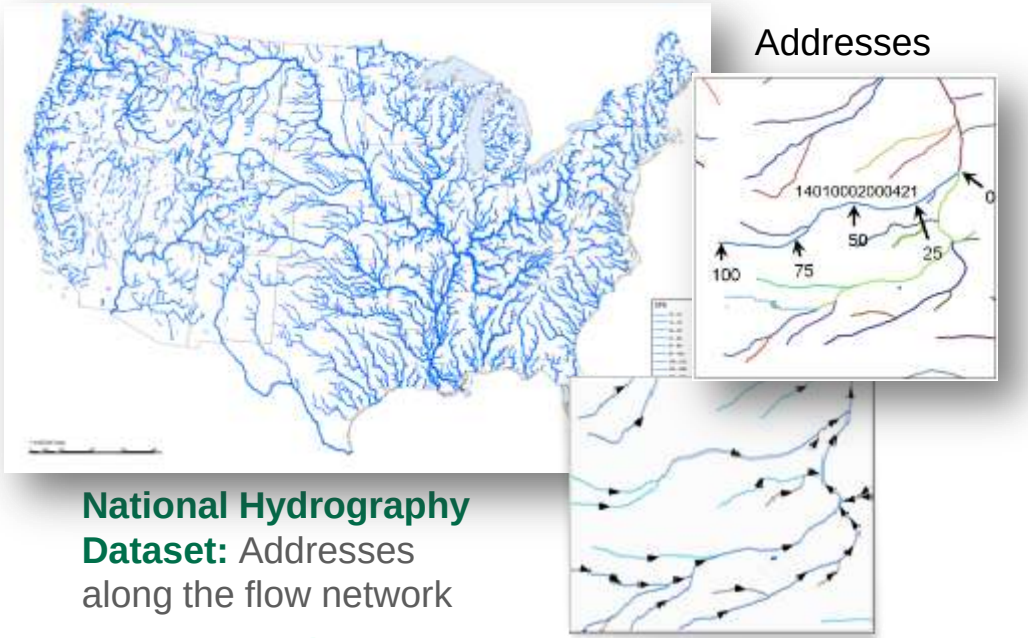
National Hydrography Datasets

A common referencing system for the Nation's waterways

- **National Hydrography Dataset (NHD)** - analogous to the addresses along the road network, NHD provides a network, addresses and flow direction for streams
- **Watershed Boundaries Datasets (WBD)** – analogous to zip codes, defines drainage areas
- **NHDPlus** - incorporates features of the NHD, WBD and 3DEP elevation data to create a networked hydrography framework that incorporates the entire landscape



National Hydrography Dataset: Addresses along the flow network

Watershed Boundaries Dataset: Zip codes for each drainage area

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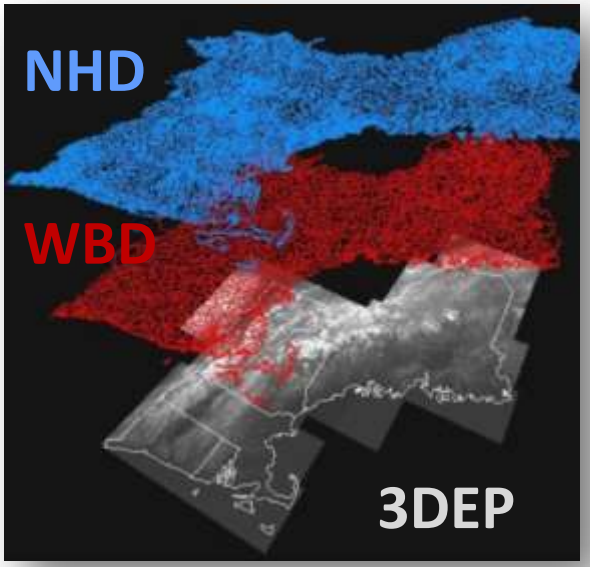
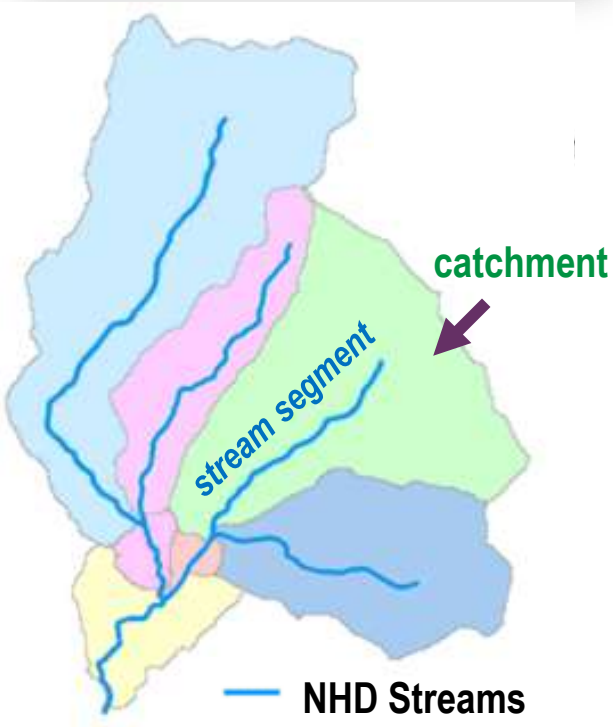
NHDPlus High Resolution

Combines functionality of NHDPlus and resolution of NHD

- The Hydrography Requirements and Benefits Study showed that ~ 80% of users need the functionality of the current 1:100,000-scale NHDPlus but ***at a higher resolution***
- NHDPlus HR integrates the 1:24,000 or better scale NHD stream network and WBD hydrologic unit boundaries with elevation
- Produces a hydrologically-conditioned surface that enables the delineation of a **catchment (local drainage areas)** for each stream segment, which are used to associate:
  - precipitation, temperature and runoff data with each stream segment for estimating stream flow
  - other landscape attributes, such as land cover, with stream segments
- Elevations along each stream are used to compute stream slope for estimating velocities used in time of travel analyses
- Provides additional value-added attributes, including stream order and attributes that facilitate rapid stream network traversal and query





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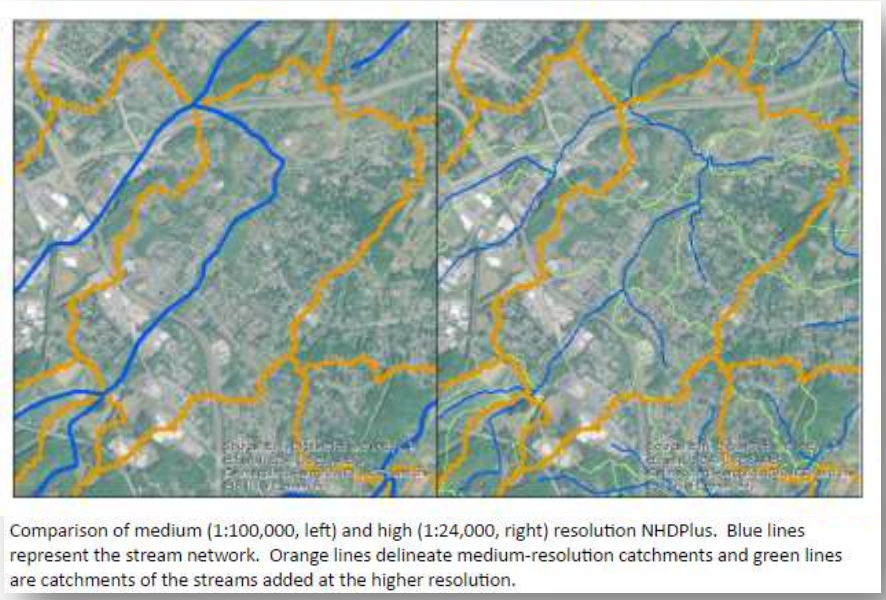
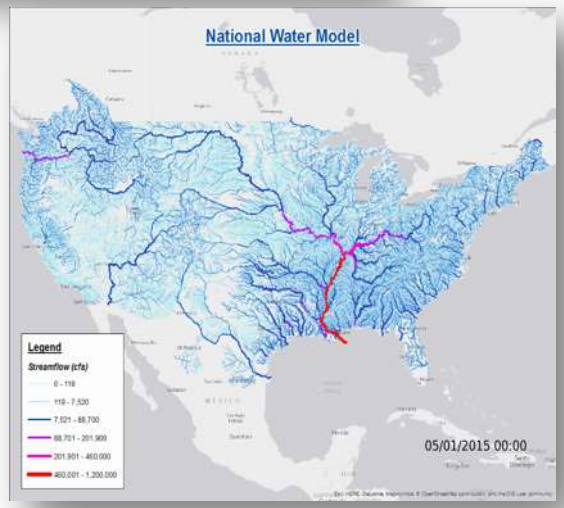
NHDPlus HR Applications

The power of a common hydrography framework

- Will enable complex models such as the National Water Model to bring flood forecasting down to the neighborhood level
- Observational data can be linked to NHDPlus HR to supporting limitless applications such as:
  - Predicting the risk, timing, and magnitude of flood events
  - Estimating when and where an event such as a toxic spill will affect downstream populations and ecosystems
  - Enabling property owners to better understand upstream water availability impacts



Comparison of medium (1:100,000, left) and high (1:24,000, right) resolution NHDPlus. Blue lines represent the stream network. Orange lines delineate medium-resolution catchments and green lines are catchments of the streams added at the higher resolution.



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NHDPlus Data Comparison

Medium Resolution versus High Resolution

	NHDPlus Medium Resolution (V2)	NHDPlus High Resolution
Number of catchments	~2.7 Million nationally	~26 Million nationally
Elevation Input	National 1 Arc-Second Seamless DEM (30 meters)	National 1/3 Arc-Second Seamless DEM from 3DEP (10 meters)
NHD Input	Medium Resolution NHD 1:100K	High Resolution NHD 1:24K or better
WBD Input	Composite 2010-2012	Updated WBD
Catchment size	Avg. 1.2 square miles	Avg. ~0.2 square miles
Flow estimates	Mean annual, mean monthly	Mean annual

NHDPlus HR Workflow - Build/Refresh

Prep Components

USGS preps and QCs component datasets (NHD & WBD) and delivers them to the contractor

Build and Deliver NHDPlus HR Beta

Contractor builds NHDPlusHR Beta using NHD, WBD and 3DEP elevation data, and delivers NHDPlusHR Beta to USGS

Beta Distribution and QC

USGS distributes NHDPlus HR Beta to the public while concurrently coordinating a QC of the data with outside reviewers

Implement Revisions

USGS implements the NHDPlus HR QC results into the component datasets, Beta data remains available to the public throughout this process

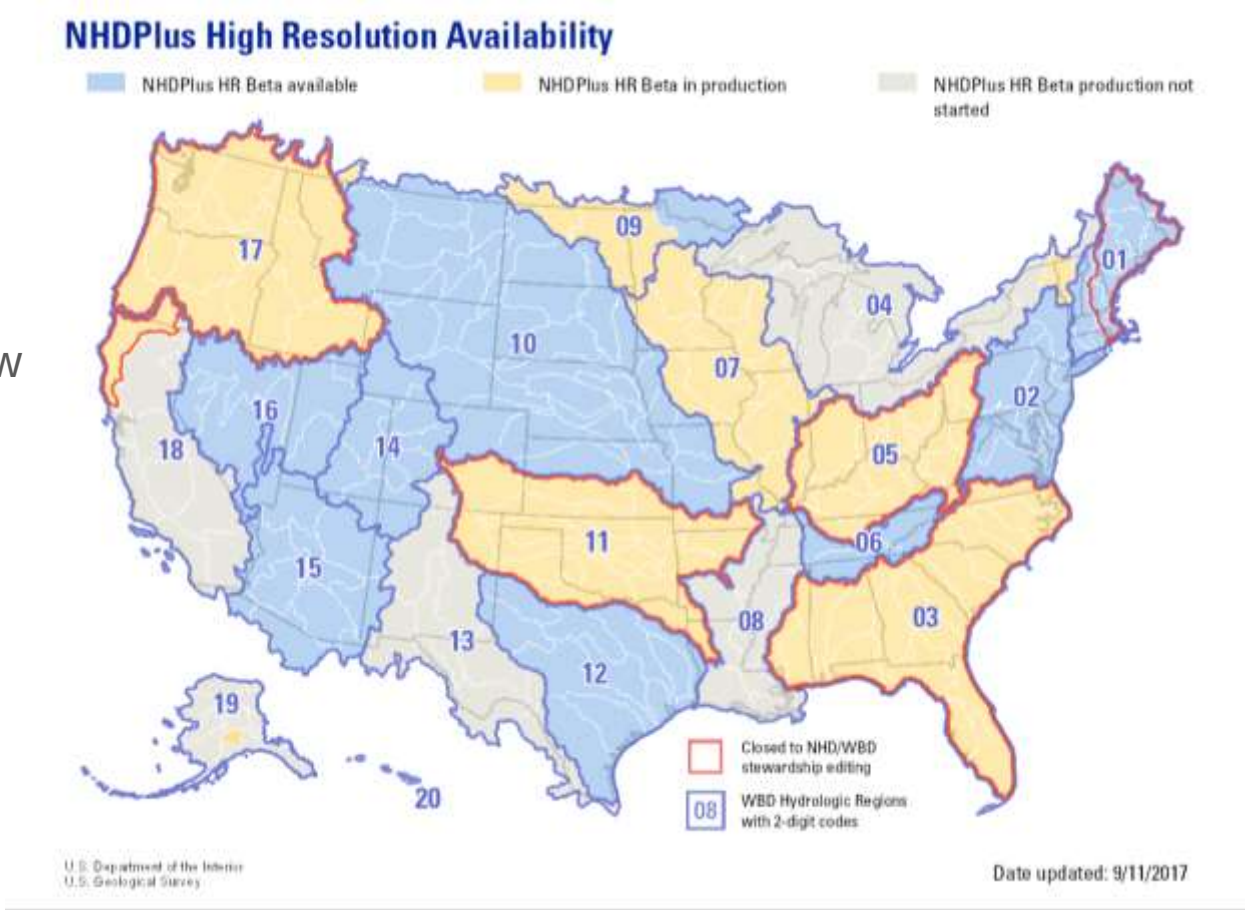
Refresh and Distribute – Repeat Over Time

USGS refreshes the data by rerunning build tools with corrected component datasets to create a post-Beta version, the data is refreshed as needed in the future

NHDPlus High Resolution Beta

First datasets released in April, 2017

- NHDPlus HR Beta will be completed in 2018 for the conterminous U.S., followed by AK, HI, and territories in later years
- Users are invited to review and provide feedback to the Beta version datasets
- Feedback will be used to update and improve the refreshed data release, beginning in 2018



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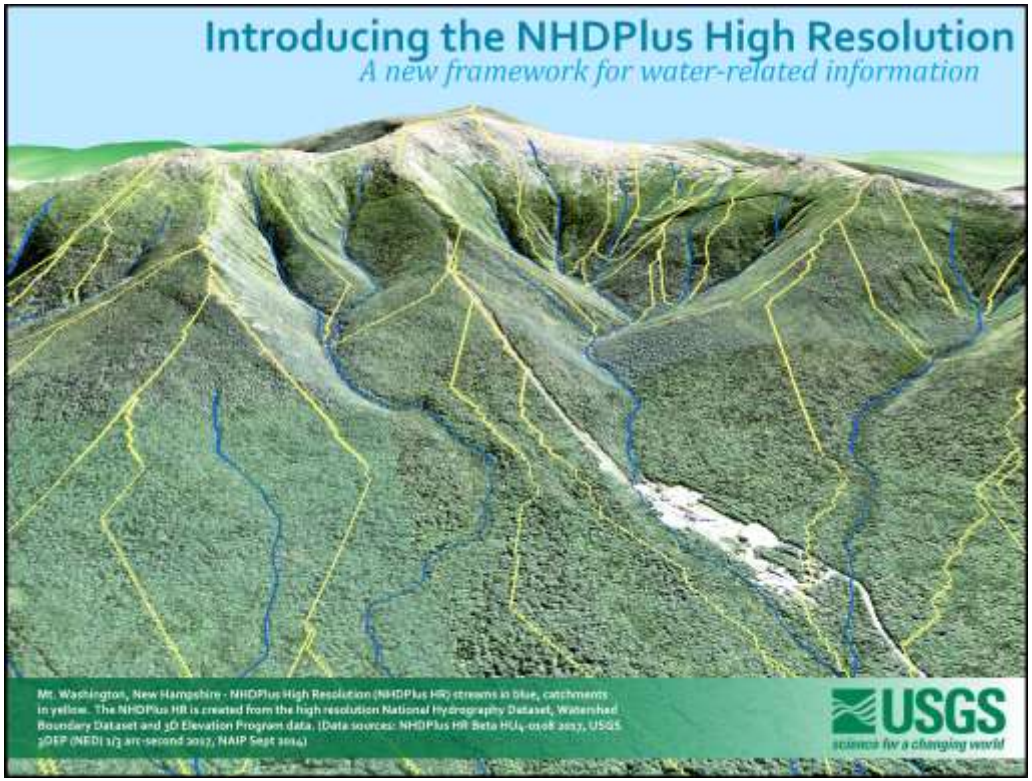
NHDPlus HR Beta QC

Quality Control Volunteers needed

- We are seeking local experts to participating in the Beta review
- Beta review improves *not only* the NHDPlus HR, *but also* the NHD/WBD!
- Please spread the word
- For information about NHDPlus High Resolution and how to volunteer see https://nhd.usgs.gov/NHDPlus_HR.html



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Thank you!

Shoshone Falls, Snake River in Idaho

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