

# How NHD & NHDPlus are Used in NARS

Presented by:

Cindy McKay

Horizon Systems Corporation

Sponsored by:

U.S. Environmental Protection Agency

Office of Water

# NHDPlus a Geospatial Surface Water Framework



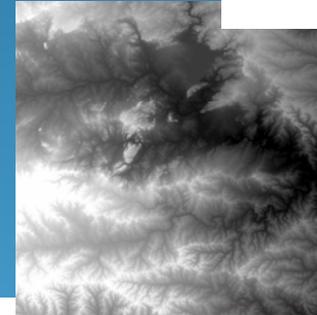
# NHDPlus

- An set of application-ready, geospatial, surface water data products
- Spatial and functional integration of NHD, NED, and WBD
- The first national integration of these datasets

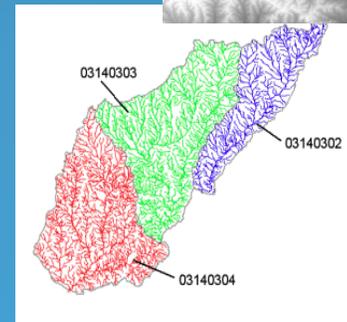
National Hydrography Dataset (NHD)



National Elevation Dataset (NED)



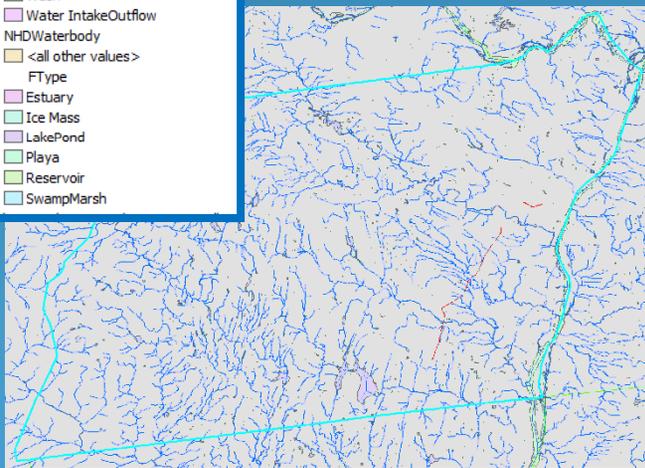
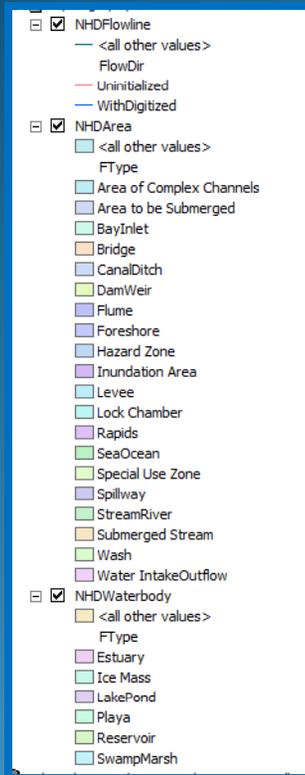
Watershed Boundary Dataset (WBD)



# National Hydrography Dataset (NHD)

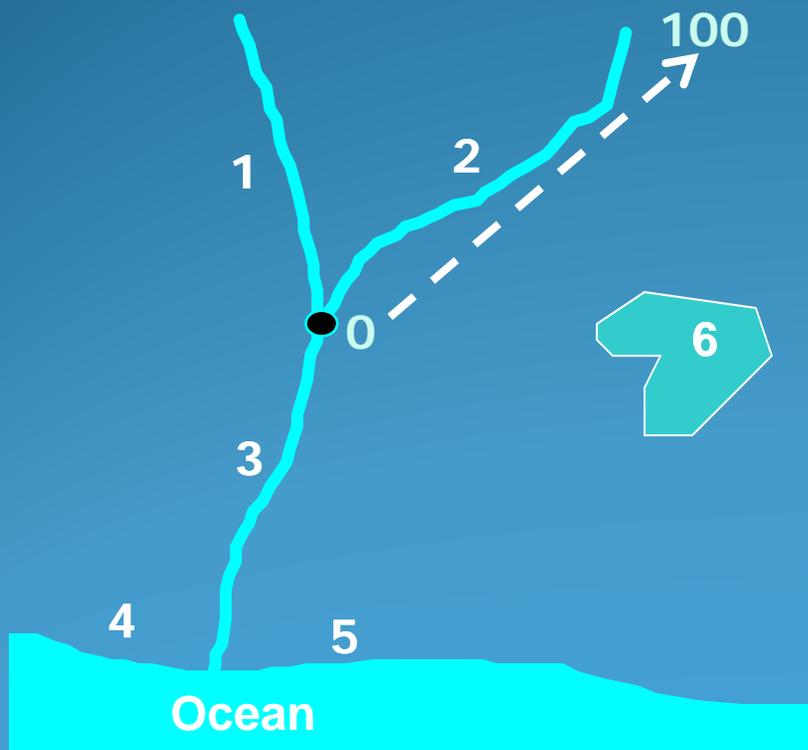
A national framework dataset that includes:

- Hydrographic features for making maps
- A national stream addressing system for linking information to the surface water
- A surface water network for navigating upstream/downstream
- Multi-resolution – 1:100K, 1:24K and better
- Maintenance Infrastructure – User updates



# NHD/NHDPlus: The Data Integrator

Subbasin 02050701



3 Stream reaches:

- 02050701000001
- 02050701000002
- 02050701000003

2 Coastline reaches:

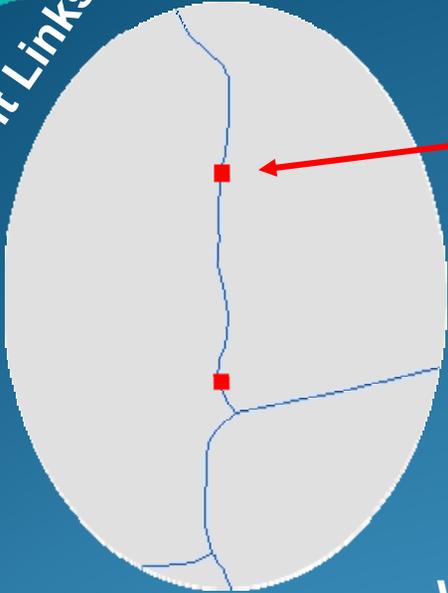
- 02050701000004
- 02050701000005

1 Waterbody reach:

- 02050701000006

# NHD/NHDPlus: Linking Data

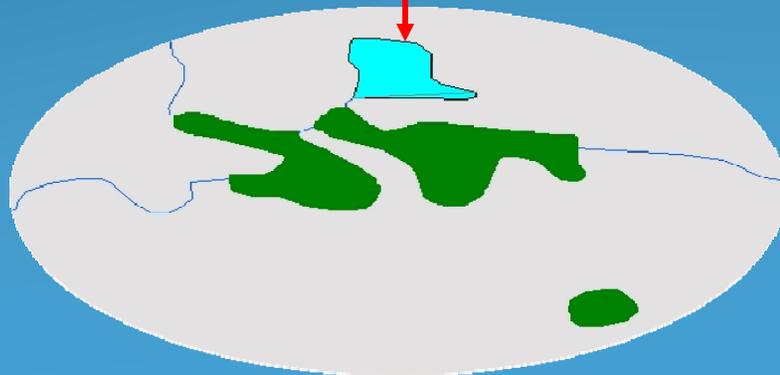
Point Links



Linear Reach: 02020005000375  
Measure: 48.247

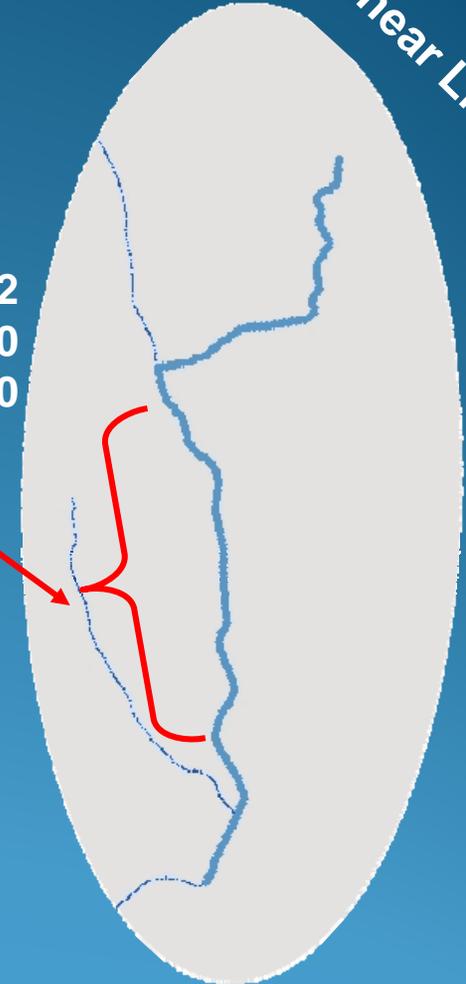
Linear Reach: 05030204004722  
From Measure: 15.0  
To Measure: 90.00

Waterbody Reach:  
06030102002785 + shape



Area Links

Linear Links



# National Elevation Dataset (NED)

A national framework dataset that includes:



- Seamless elevation data for the US
- Sources - Primarily map contours
- Multi-resolution - 30, 10, and 3 meter
- All resolutions built by re-sampling from best available data

# Watershed Boundary Dataset (WBD)

A national framework dataset that includes:

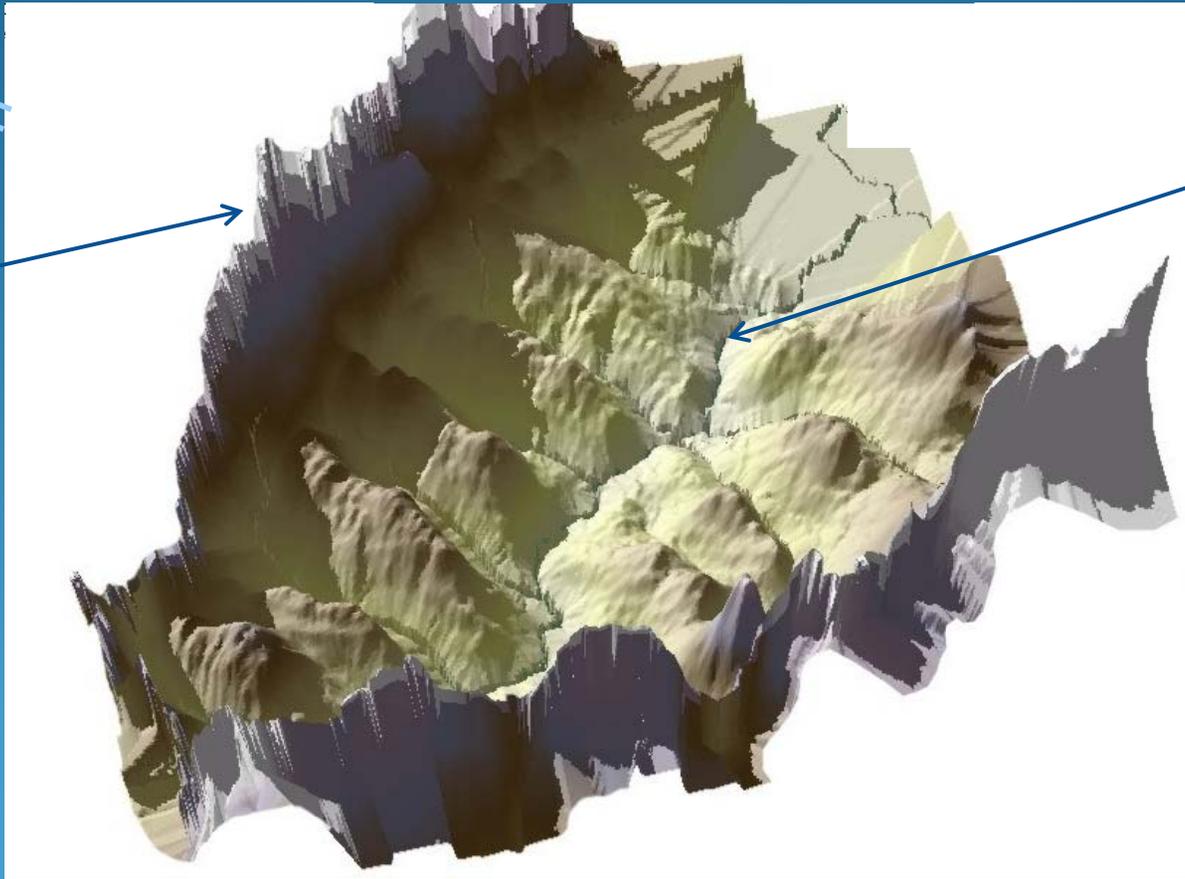
- Standardized hydrologic divisions of the landscape
- Six levels of nested divisions called hydrologic units
- Region, Subregion, Basin, Subbasin, Watershed, Subwatershed
- Hierarchical coding system – 2, 4, 6, 8, 10, and 12 digits

**Watershed Definitions**

Name	Level	Digit	Number of HUCs
Region	1	2	21
Subregion	2	4	222
Basin	3	6	352
Subbasin	4	8	2,149
Watershed	5	10	22,000
Subwatershed	6	12	160,000

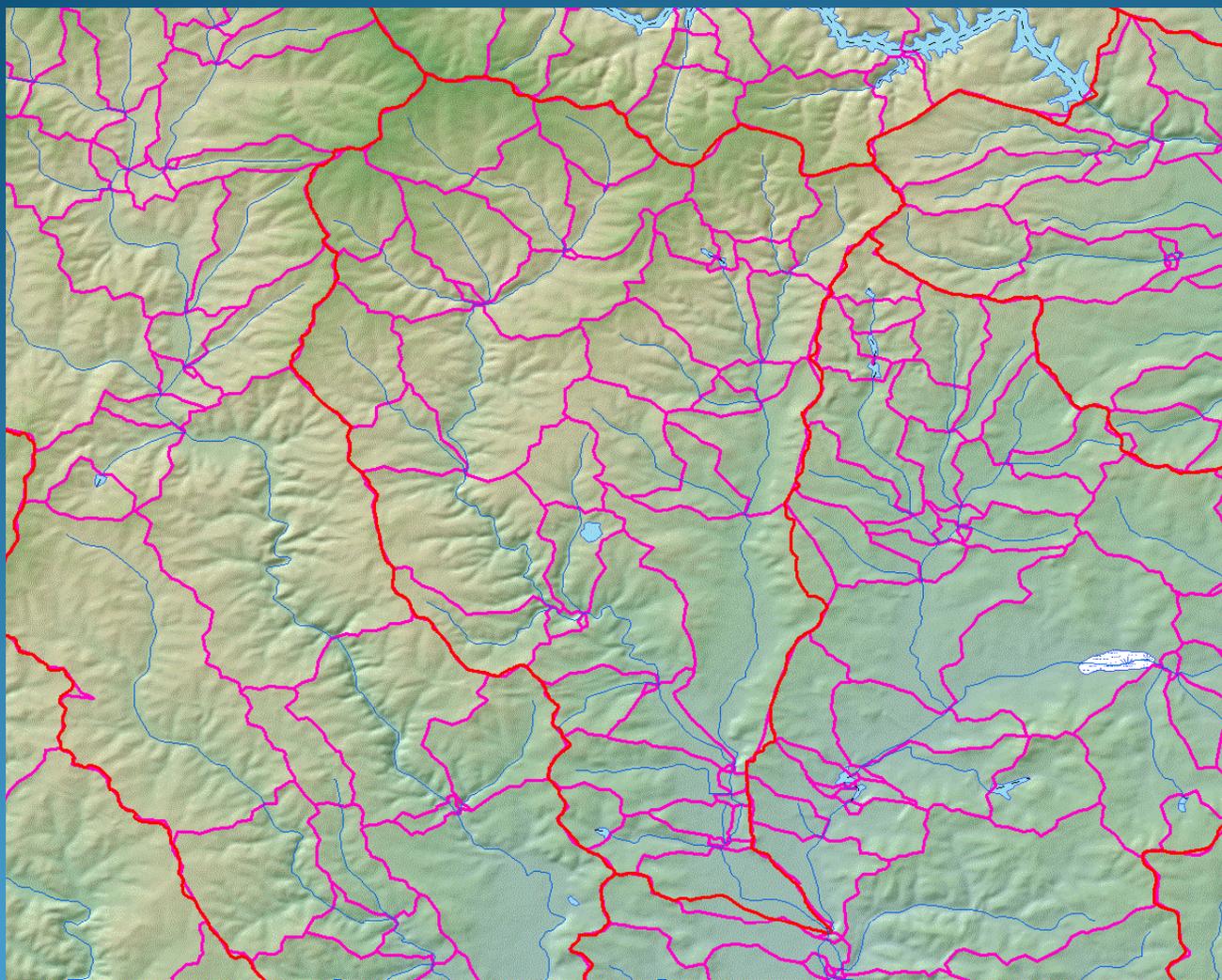
# NHD and WBD Hydrologically Condition the NED

WBD Boundary  
Cells "walled"  
Into Elevation



NHD Stream Cells  
"burned" into  
Elevation





**NHDPlus**

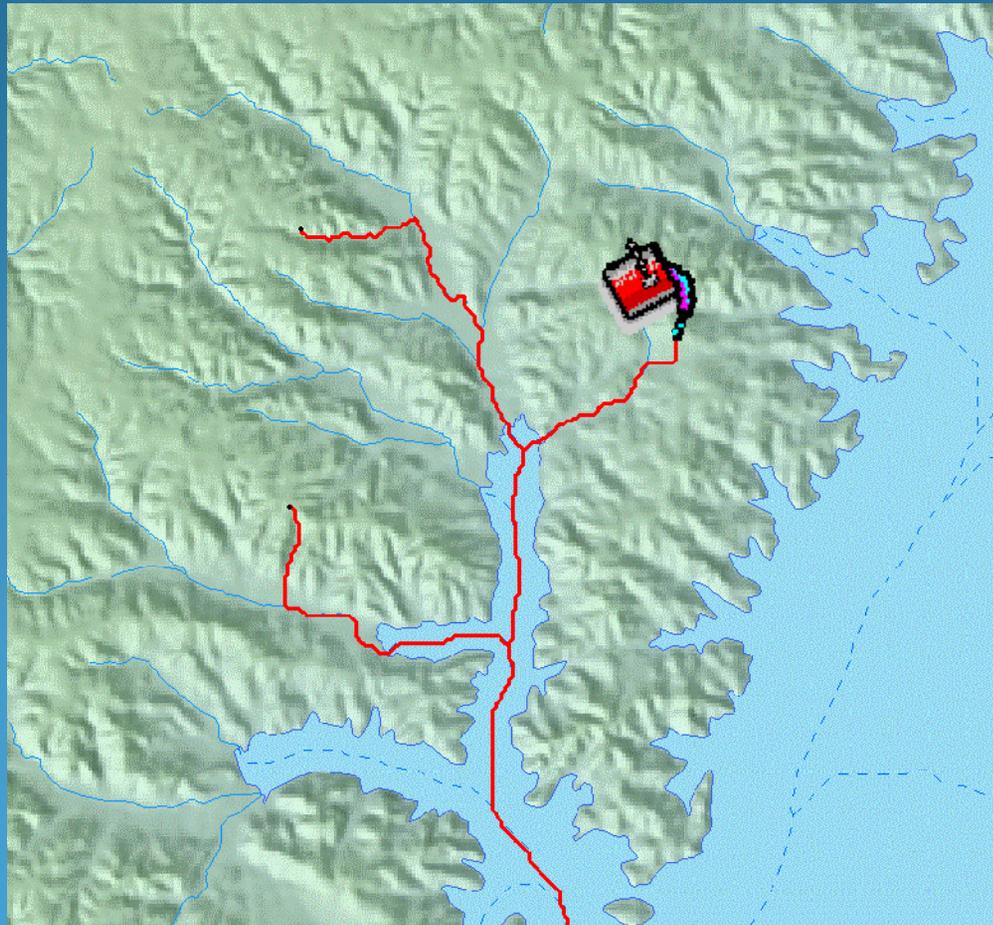
**WBD**

**NED**

**NHD**

# NHD*Plus*

Links the Mapped Stream Network to the Landscape



# NARS and NHD/NHDPlus: *A Symbiotic Relationship*



## ***NHD/NHDPlus and NARS: A Symbiotic Relationship***



↓  
**NHD/NHDPlus assists frame design**

- **Inventory of lakes and streams**
- **Waterbody Feature Typing – lake, swamp, stream, canal**
- **NHD Attributes – Intermittent/Perennial**
- **NHDPlus Attributes – Stream order, Mean Annual Flow**

## *NHD/NHDPlus and NARS: A Symbiotic Relationship*



### **NARS updates to NHD**

- **New lakes**
- **Revised feature geometry**
- **Feature Type – “not a lake”, intermittent/ephemeral**
- **Feature Name – local information**

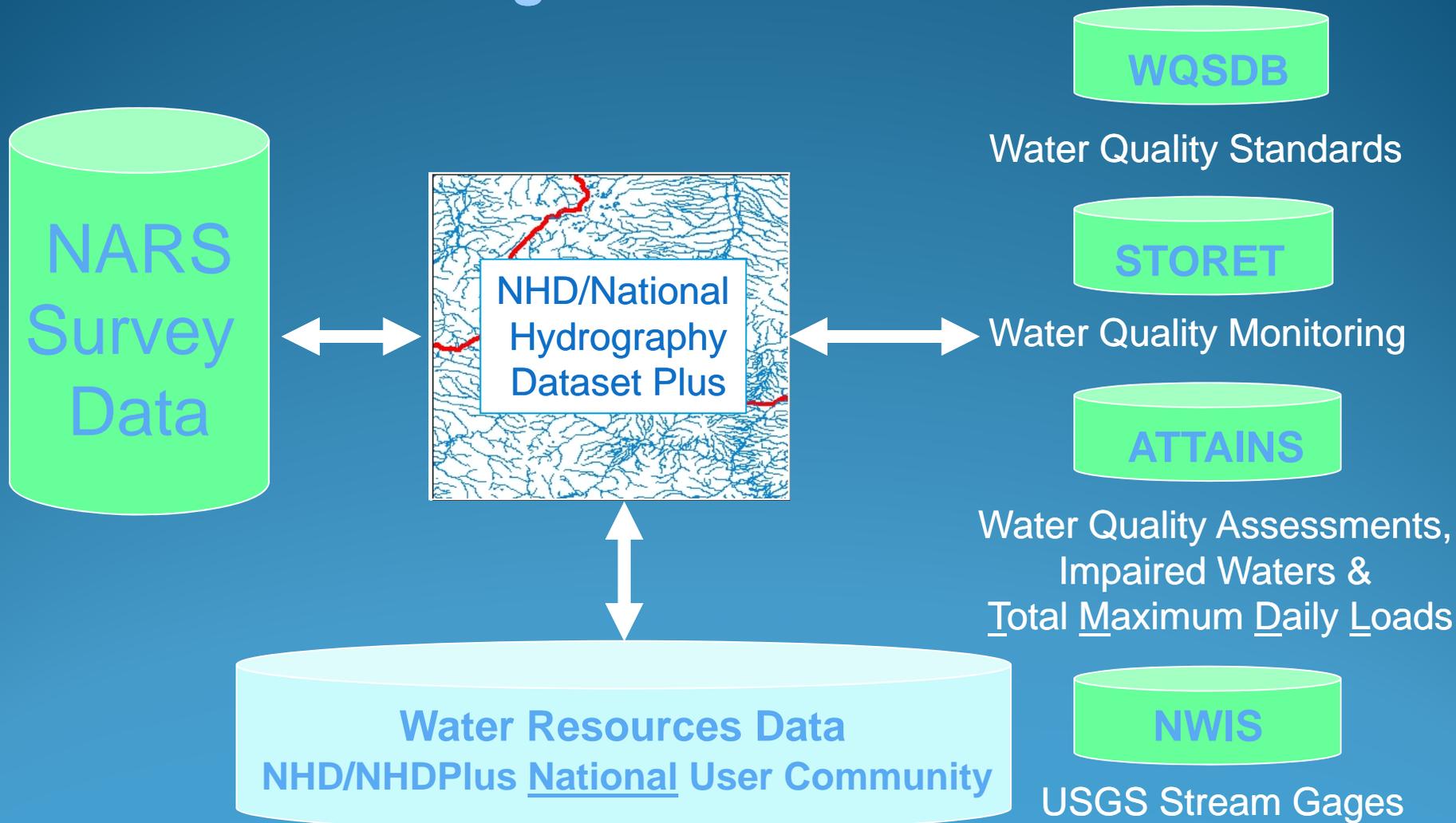
## ***NHD/NHDPlus and NARS: A Symbiotic Relationship***



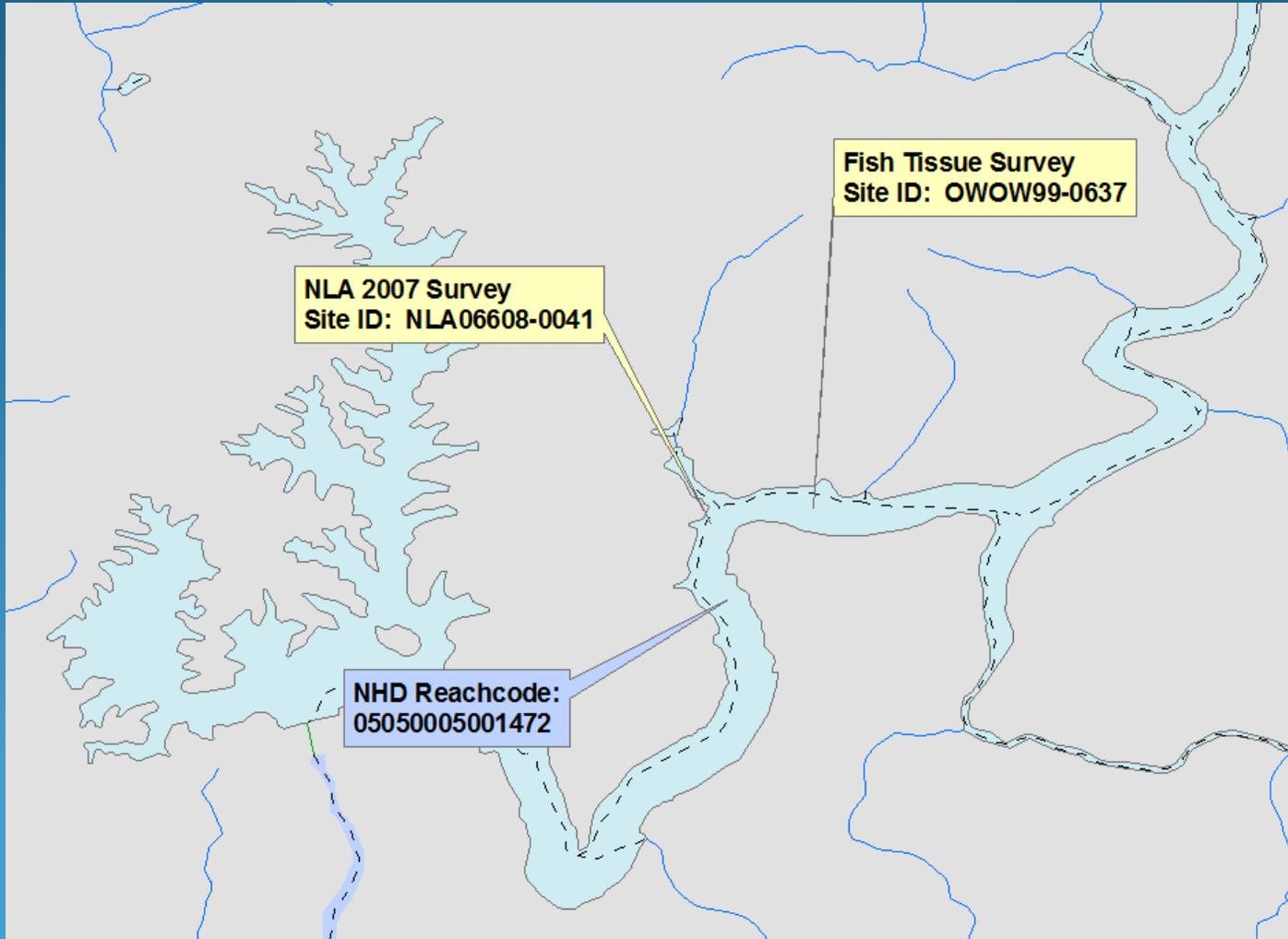
### **NHDPlus analytical capabilities**

- **Characterization of area surrounding lake or stream**
- **Basin Delineation**
- **Watershed Characterization**
- **Much more.....**

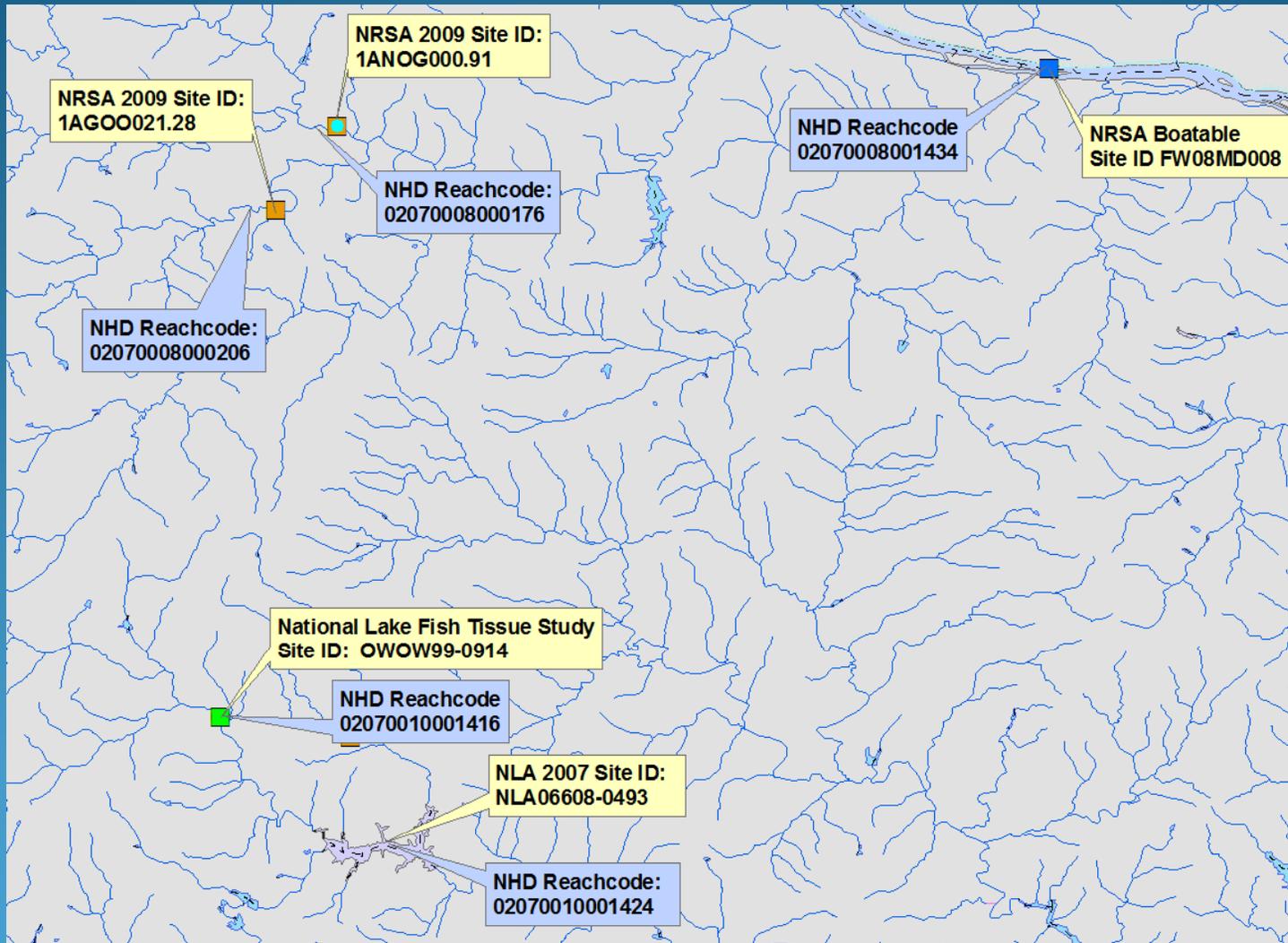
# Linking NARS to the Water Resources Community Through NHD Reachcodes



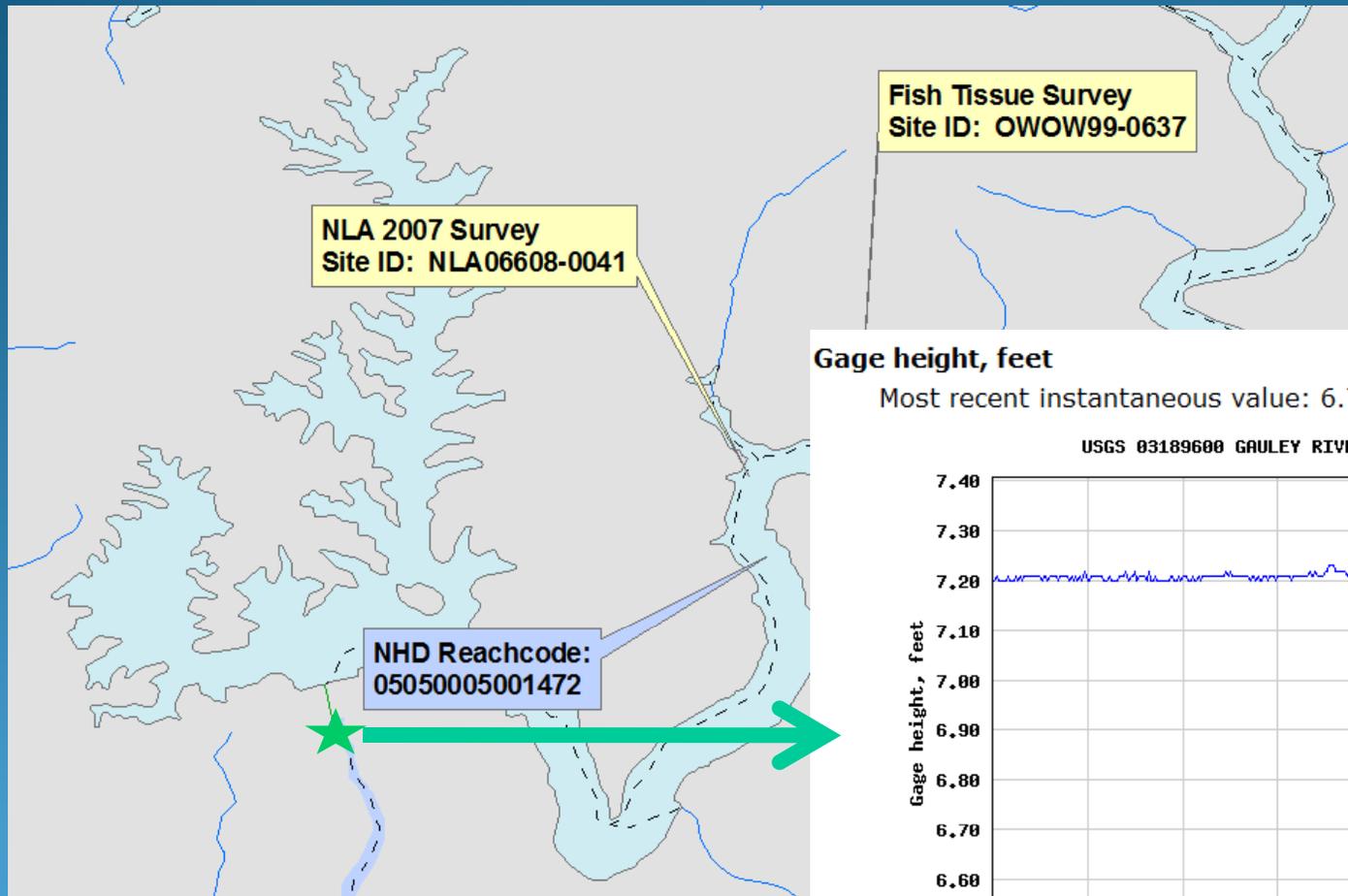
# Linking NARS Surveys to Each Other



# Linking NARS Surveys Spatially or Hydrologically



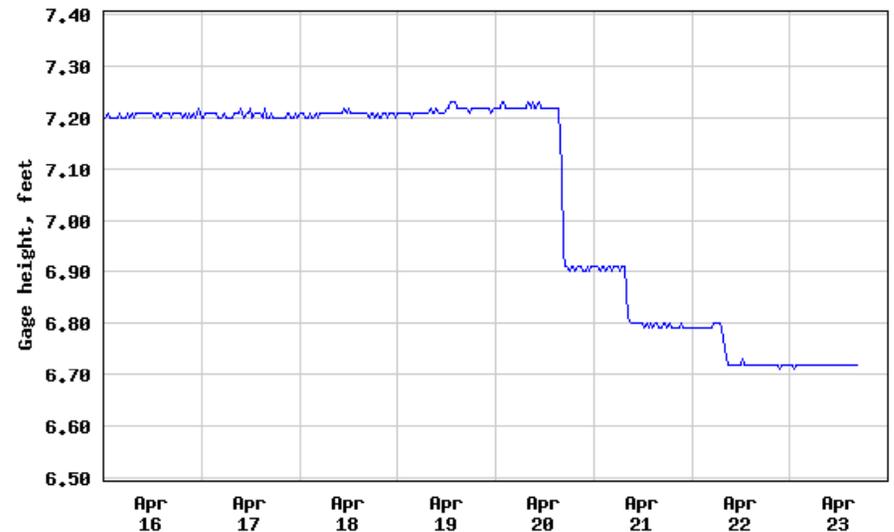
# Linking NARS to Water Resources Community



## Gage height, feet

Most recent instantaneous value: 6.72 04-23-2010 16:30 EDT

USGS 03189600 GAULEY RIVER BELOW SUMMERSVILLE DAM, WV



# More about NARS and NHD/NHDPlus...

Thursday – 8:00 am – Concurrent Session K2 – Room 16



Questions?