

An aerial photograph of a river delta, showing intricate patterns of sandbars, channels, and water. The image is overlaid with a semi-transparent blue band across the center, which contains the main text. The colors of the landscape include light tan sand, dark brown water, and patches of green vegetation.

ONE MAP: VALUE TO STATE GOVERNMENTS

*Integrating water and carbon information for
easier and better decision making*

OVERVIEW

- History of federal spatial datasets
- One Map Concept
 - Hydrography
 - Land Cover
 - Wetlands
 - Carbon
 - Flooding
- Collaborative Opportunities
- Discussions

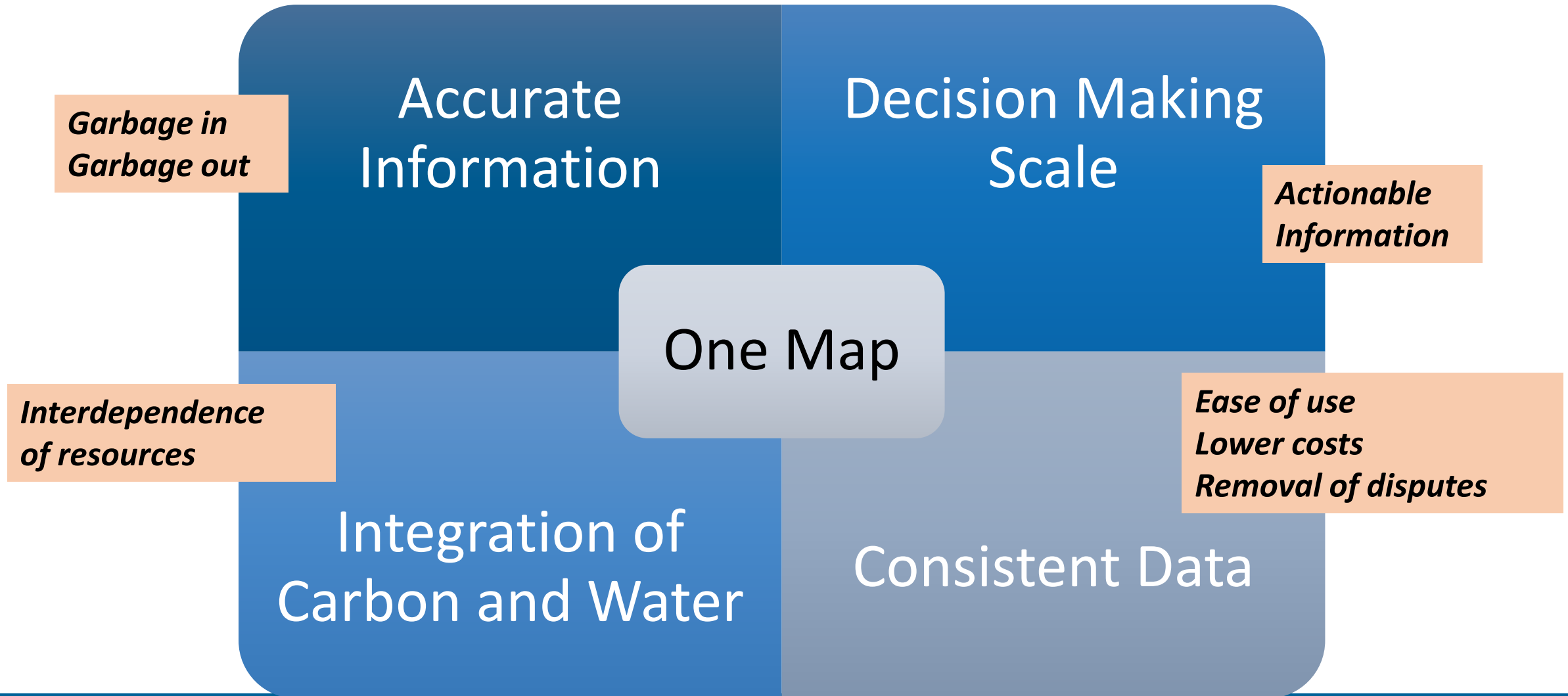
- Historically agencies create data that are specific to their mandate from differing source data at different resolutions.
 - NHD – 1:24,000 from quad sheet – from source data anytime between 1950 – 2000 – digitized by hand
 - NWI – 1:24,000 Originally PI from NIR leaf off NAPP photos then digitized
 - NLCD/CCAP/STATE LAND Land Cover (30 m) from Landsat
 - DFIRMs Flood Mapping – surveys and engineering – limited extent
- Inconsistent scale
- Inconsistent definitions
- Challenges in overlaying datasets and coming to conclusions

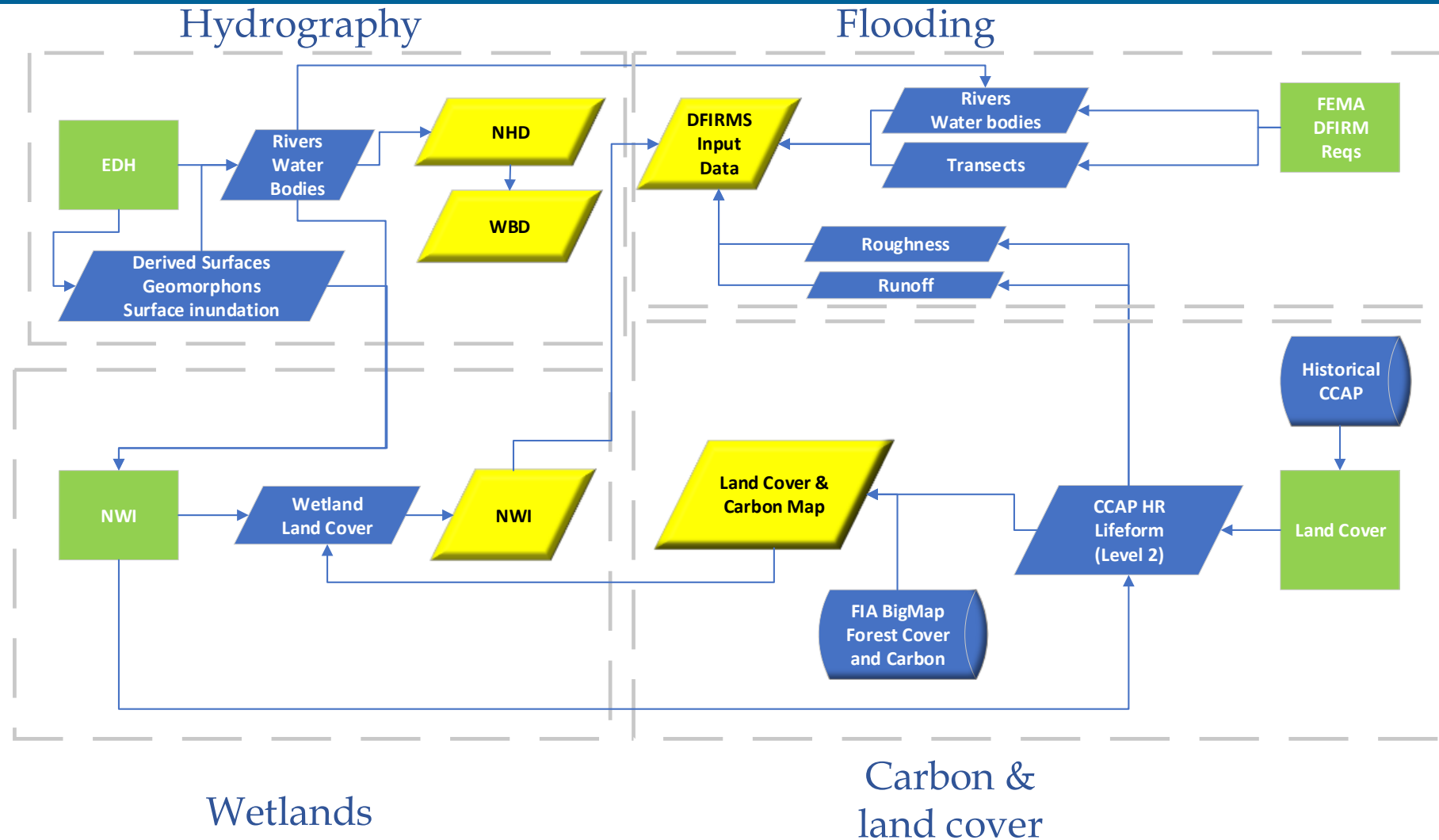
WHY NOW IS THE TIME?

- **Historically** datasets that mapped water and carbon were created from different data sources and at different scales
- Conducting any type of analysis from these data required **significant effort**
 - Inconsistent boundaries
 - Inconsistent definition of classes
 - Data used at a scale not designed for
 - Resulting in using the coarsest resolution
- Develop all these datasets off the **same scale source data** (imagery and lidar)
- **Operational** decision-making scale
- **Nationwide** Federal efforts
- **Reduced cost** of producing data together
- **Increased utility** of consistent data
- Massive requirements to combat **climate change**

Climate resilience

MANAGEMENT DEPENDS ON



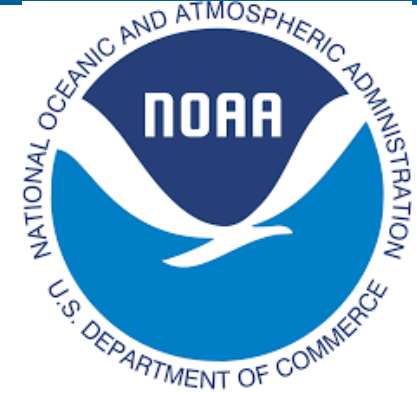


FEDERAL PROGRAMS

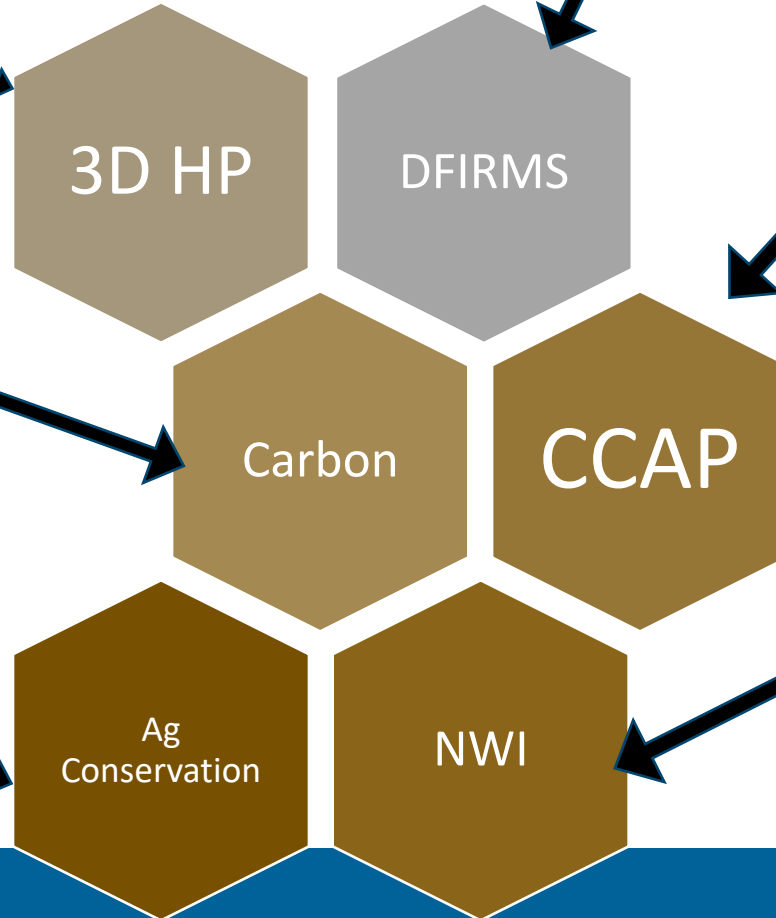
NV5
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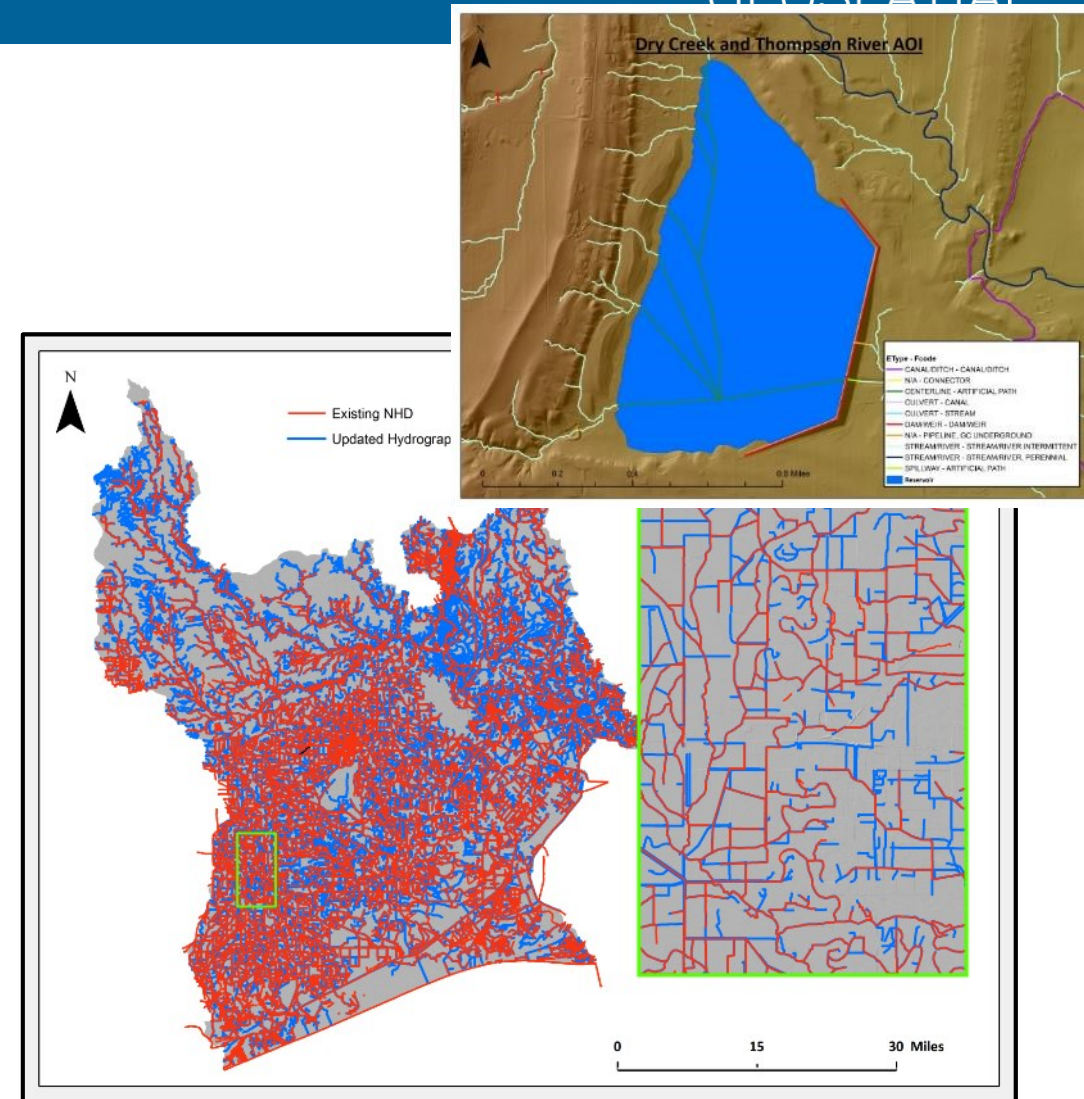
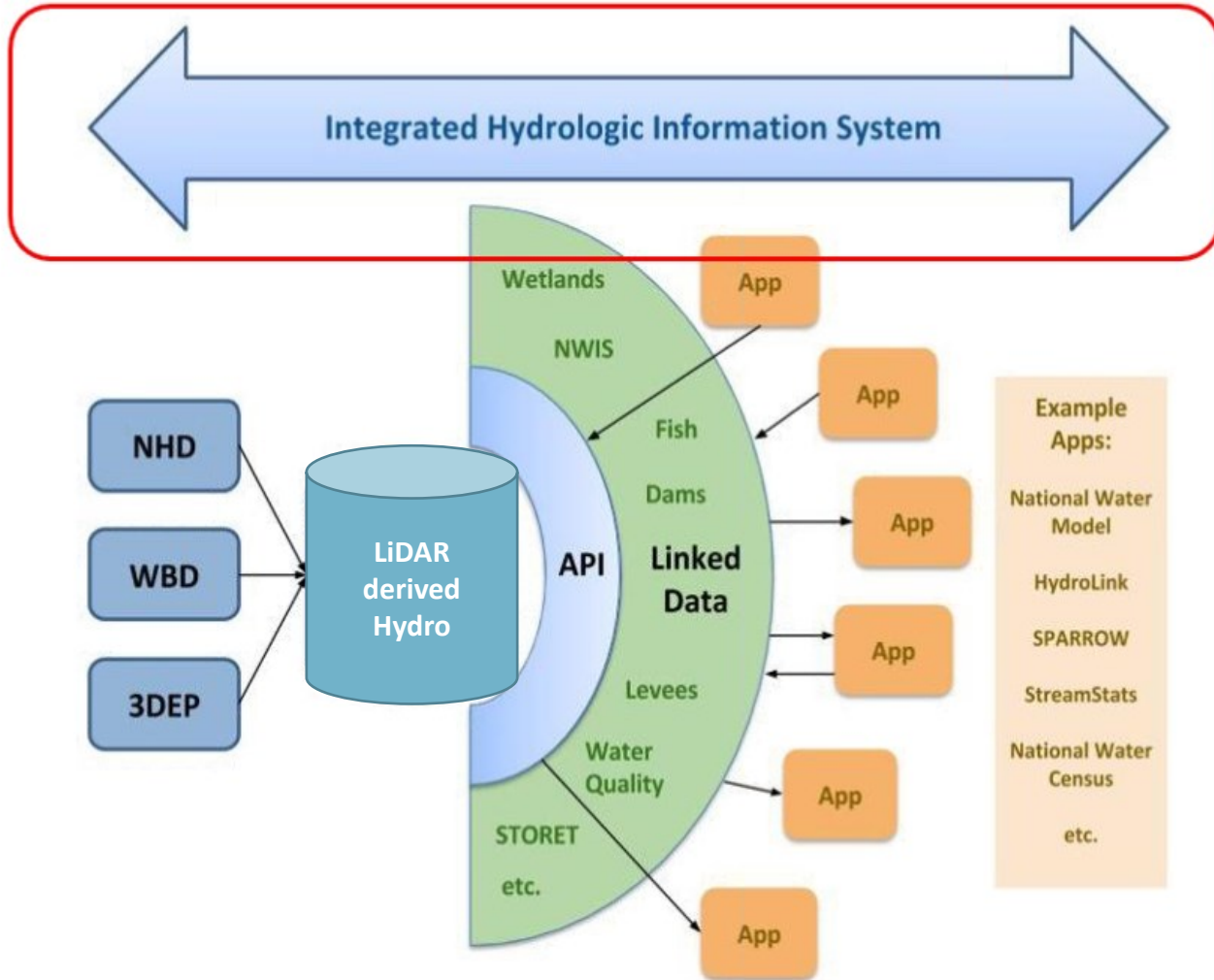
FEMA



NRCS



HYDROGRAPHY APPLICATIONS



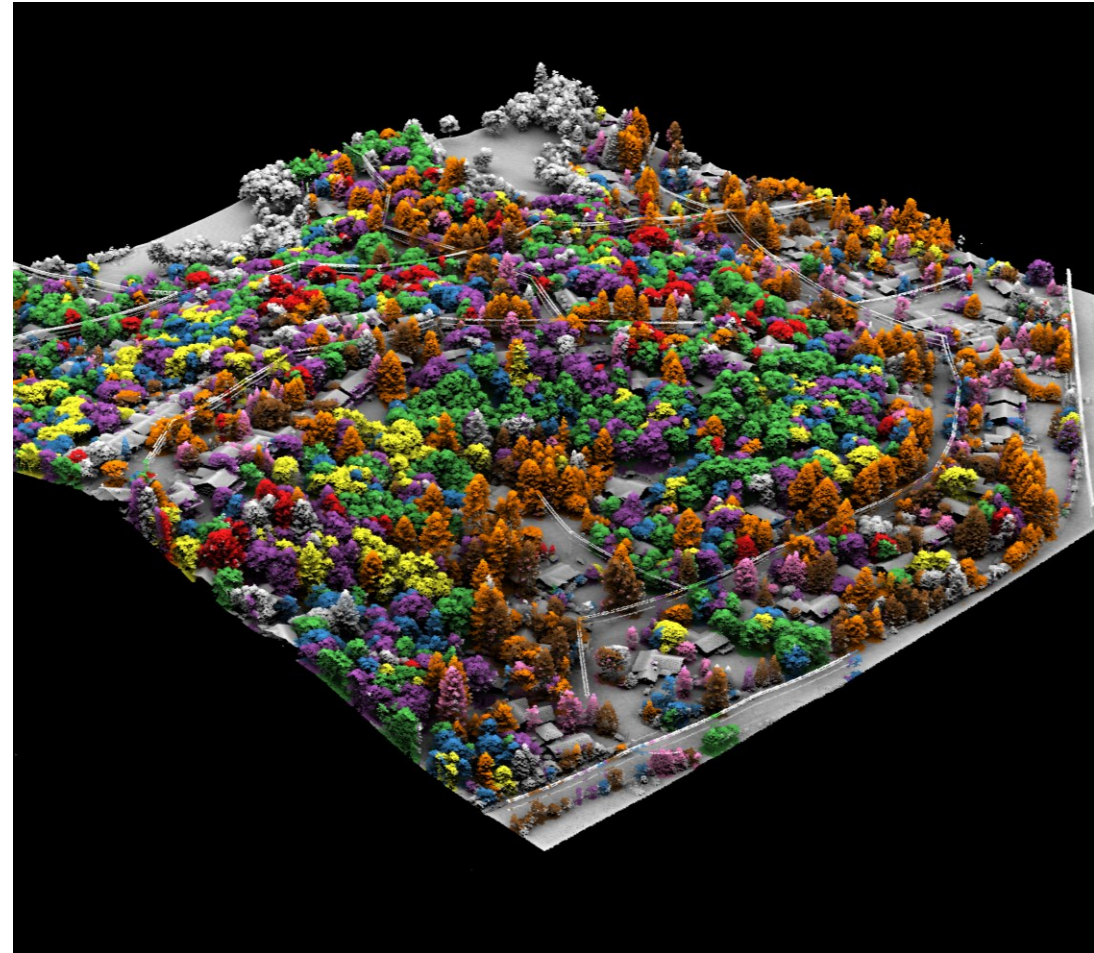
CCAP – LAND COVER

- NOAA's Coastal Change Product
- High resolution mmu 0.1 - 0.25 acres
- 3 layers will be delivered for all coastal counties at 1 m
 - Water
 - Impervious
 - Canopy
- Can then refine into multiple (18) classes
- CCAP 2.0 (2020/2021)
- Emphasis on wetlands classes (9 classes/5 for Lake States)
- Use existing NWI as input
 - Hydric soils/wetland probability
 - EDH derivatives support mapping



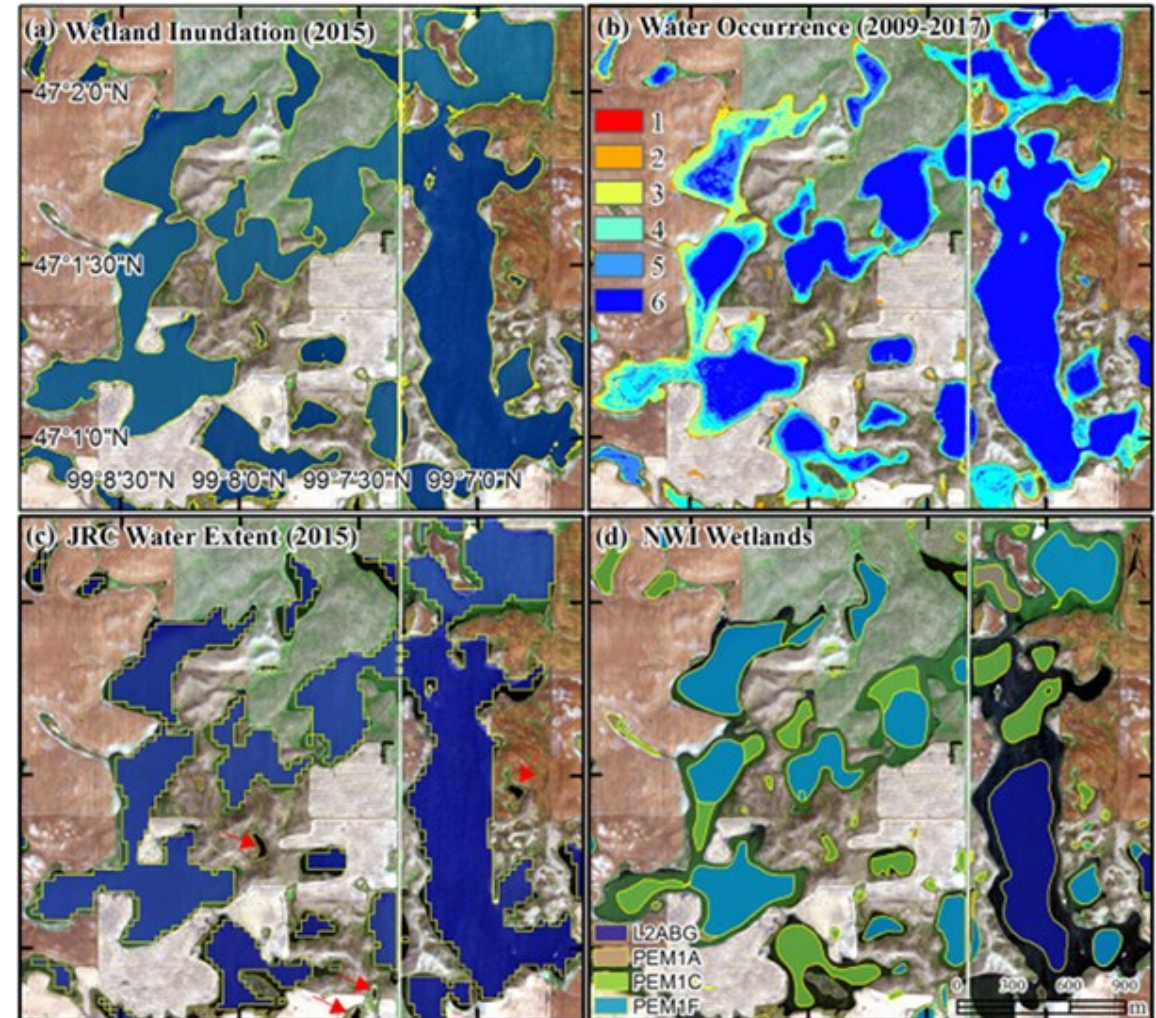
LIDAR AND LAND COVER

- When we combine lidar with land cover we get
 - Height classes = carbon/value
- Level of detail depends on point density
- QL2 good enough for small, medium and big trees
- QL1 good enough for individual tree segmentation
- Evergreen/deciduous divide
 - Leaf off easier
 - Leaf on possible (broadleaf/conifer)



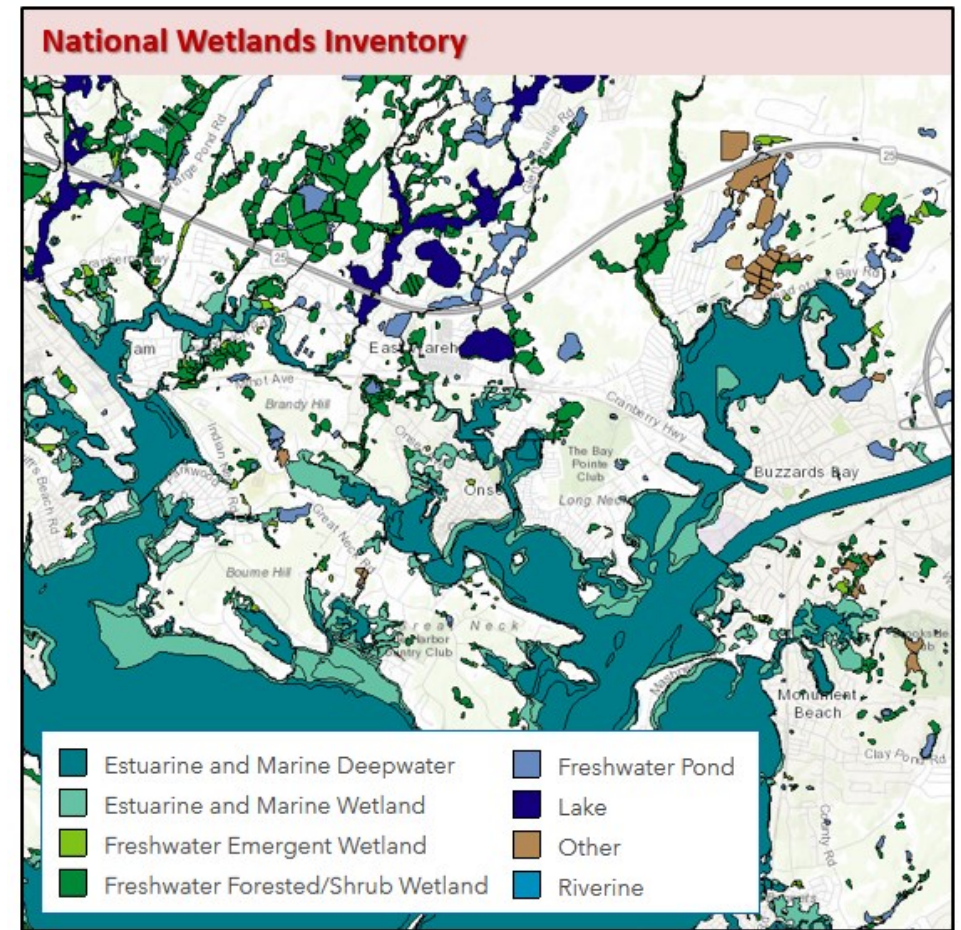
CCAP/LAND COVER OUTPUTS THAT SUPPORT NWI

- Impervious surfaces
- NDVI
- Generalized lifeform wetlands
- Upland landcover types
- Lidar derived height characteristics
- NWI outer boundary



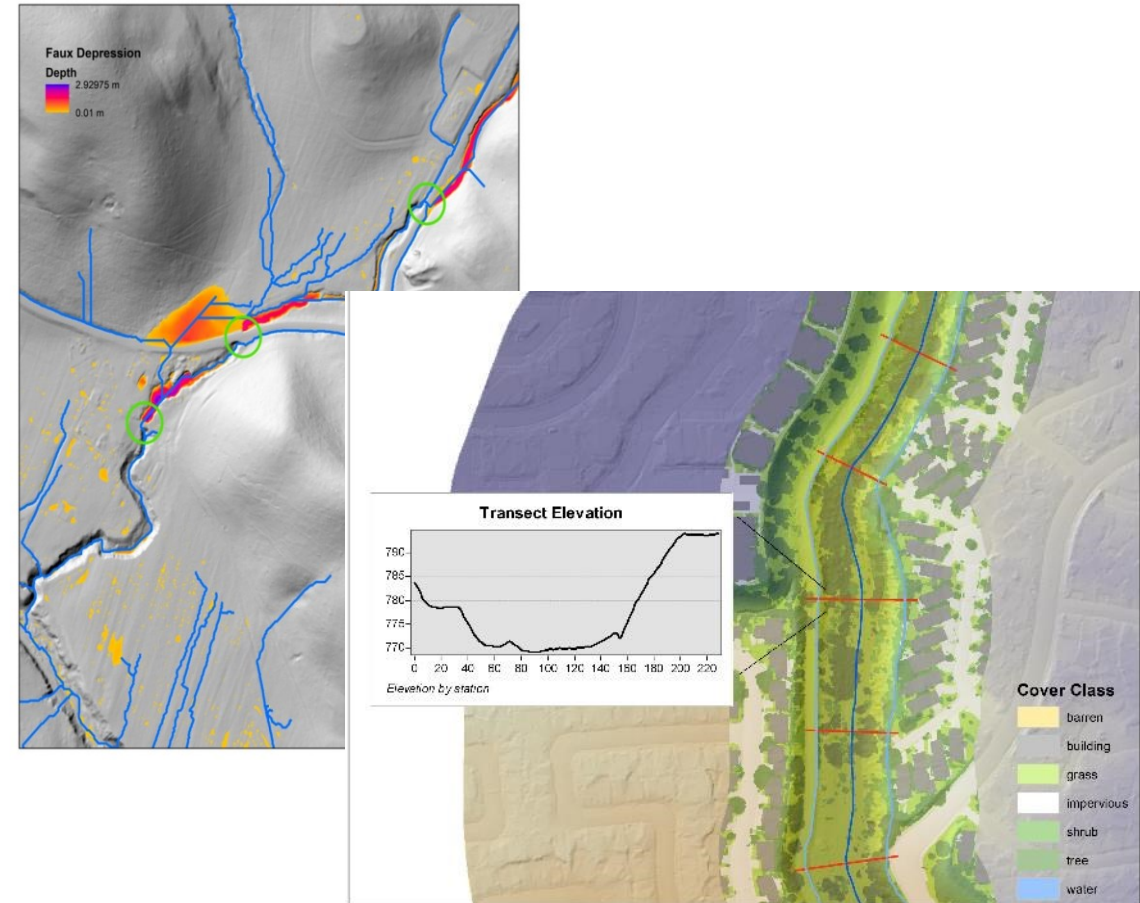
USING THESE DATA TO SUPPORT WETLANDS

- Nesting NWI within the CCAP Classification schema
- What decisions need to be made to ensure
 - Same quality
 - Lower cost
 - Faster production
- Greater information value because part of a holistic solution wetlands and upland and water
- Consistency of datasets within regions
- Consistency of datasets across agencies



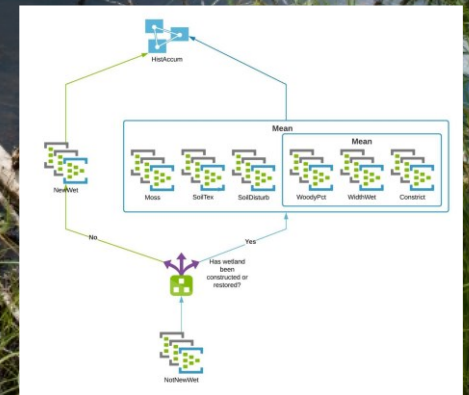
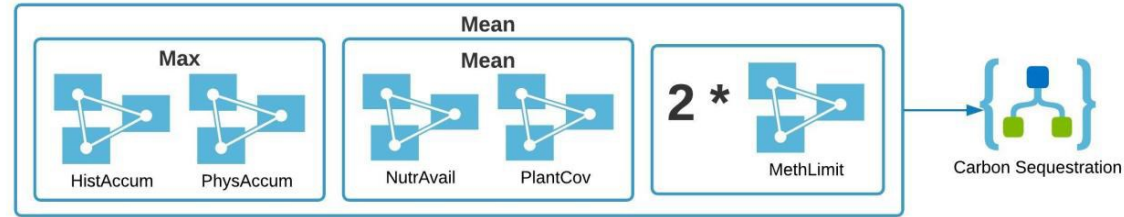
USING THESE DATA FOR FLOOD RISK MAPPING

- Source Data
 - Lidar, imagery and *bathymetric data*
- Derived mapping
 - From hydrography: hydrology, channel geometry, impediments (culverts/bridges)
 - From land cover: roughness, watershed conditions
 - Hydro-enforced DEM
- 1D & 2D H&H (water flow) models



APPLICATIONS: CARBON STORAGE AND SEQUESTRATION

- Land Cover type
 - Forested
 - Wetlands
 - Agriculture
- Sequestration rate
- Storage
- Size of trees
- Tree growth rates



- Network connectivity
- Land cover and land use
- Watershed delineations
- Non-point source modeling
- Erosion modeling
- Wetland functional assessments



- Impervious
- Wetland water storage potential
- Flood plain functions
- Flooding inundation modeling
- Climate resilience
- Culverts - wetlands
- Land restoration potential for flood mitigation
- Watershed analysis with other land covers integrated



Attribution: Hurricane Ian: Grist.org

KEY TAKE AWAYS

- All datasets developed from same data source so
 - Seamless integration
 - Operational scale
 - More recent vintage
- Datasets will become foundation for analyses across communities
- Critical to future water supply protection – stormwater runoff
- Provides the basis for assessment of carbon storage and sequestration
- Backed by approved federal government datasets
- Goal is to make these datasets nationwide



THANK YOU!!

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