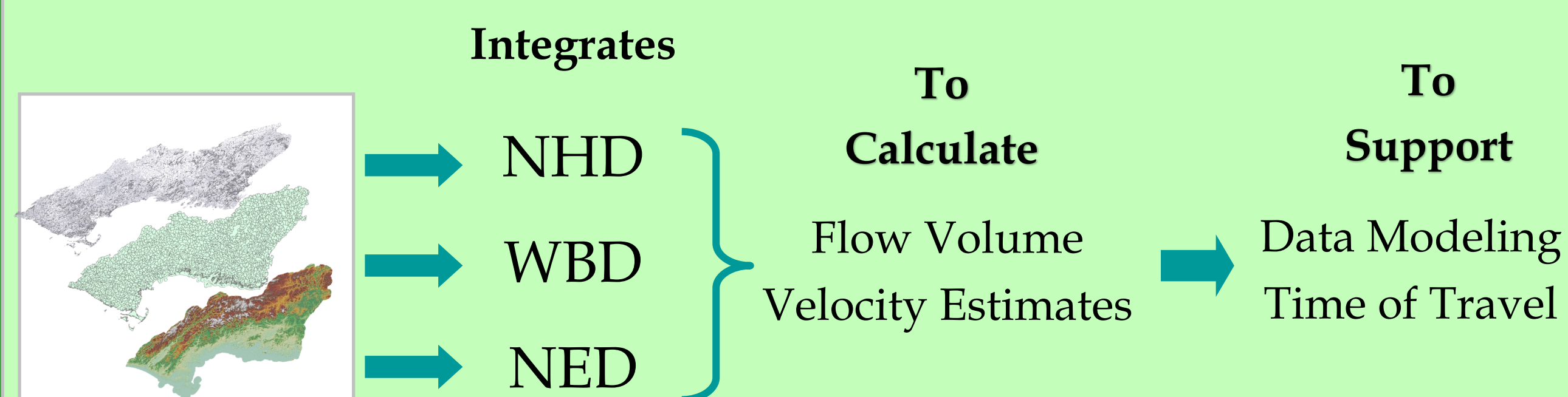




NHDPlus

⇒ "Plus" = More DATA to support your geospatial analysis and map

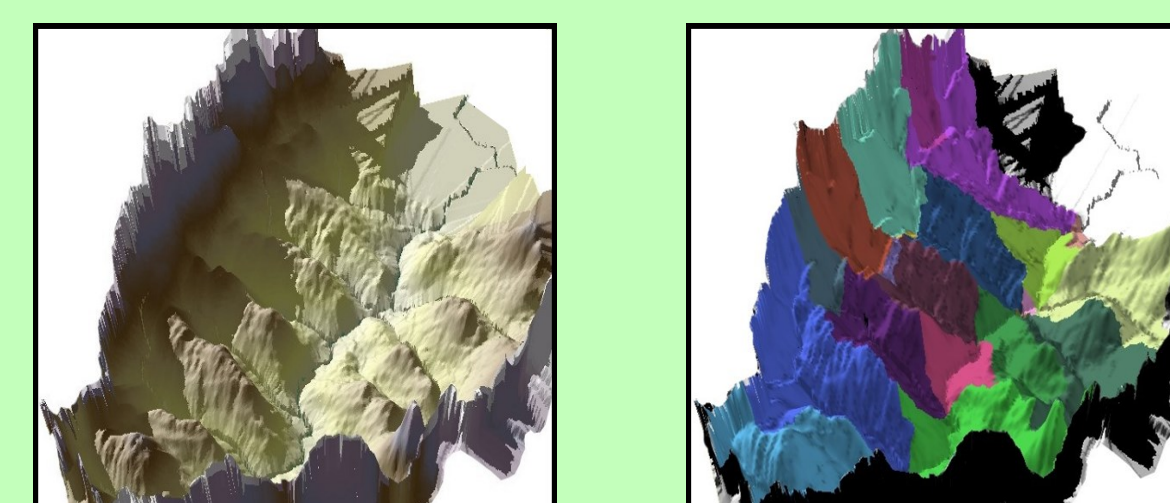


NHD (National Hydrography Dataset)
WBD (Watershed Boundary Dataset)
NED (National Elevation Dataset)

Get Data at: <https://www.epa.gov/waterdata/nhdplus-national-hydrography-dataset-plus>

Catchments

⇒ Are elevation-derived local drainage areas for individual stream segments. Catchments have attributes.



- ⇒ Are produced for stream segments in the 1:100K NHDPlus
- ⇒ HUC12 boundaries provide improved catchment boundaries
- ⇒ On Average ~ 30 catchments exist within a single HUC12
- ⇒ Hundreds of attributes are linked to the NHDPlus catchments such as:

- | | |
|---------------------------|-----------------------------|
| Land Use Characteristics | Stream Order |
| Mean Annual Precipitation | Mean Runoff |
| Mean Annual Temperature | Mean Annual Flow |
| 30 Year Mean Temperature | Density of Superfund Sites |
| Mean Population Density | Density of NPDES Facilities |
| % Riparian Buffers | Mean Impervious Cover |

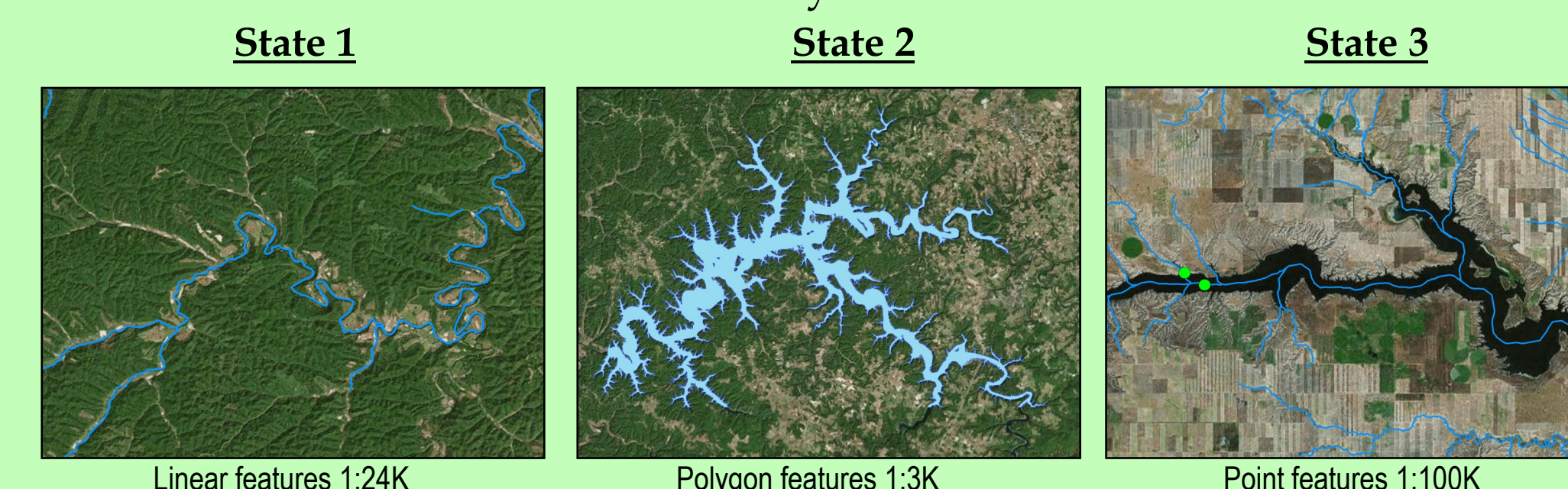
...AND MANY MORE!

Why is EPA Using Catchments to Report the Health of Waters?

States identify water quality Assessment Units differently from state to state! They use different hydrologic networks, geospatial resolutions, and feature types. Previously, EPA manually processed state assessments to the corresponding 1:100K NHDPlus flowline to produce a nationally-consistent data layer. This arduous effort highlighted the need for a standardized, efficient, and hydrologically-representative approach for georeferencing water quality assessments to measure environmental outcomes.

EPA's Use of Catchments

- ⇒ Allows states to continue to use Assessment Units of their choice to meet their needs - catchments serve as EPA's accounting units
- ⇒ Resolves differences in resolution and feature type when EPA consolidates data into a national layer

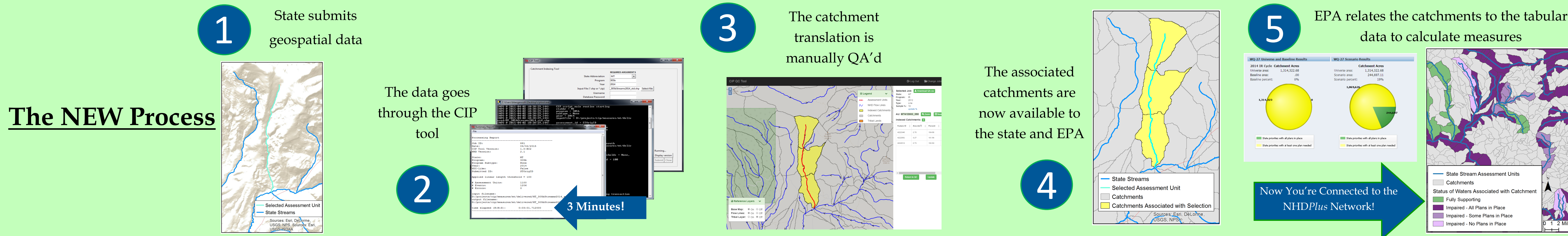


- ⇒ Decreases turnaround time to publish the geospatial data nationally
- ⇒ Saves the government time & money

	Conflated 1:100K	Catchment-Based Method
Manual Processing Time	20-100 hours/state	4-8 hours (pre-processing and QA)/state
Automated Processing Time	Not Applicable	5 minutes to 3 hours/state
Estimated Cost	~\$2,000 - \$10,000/state	~\$400-\$800/state

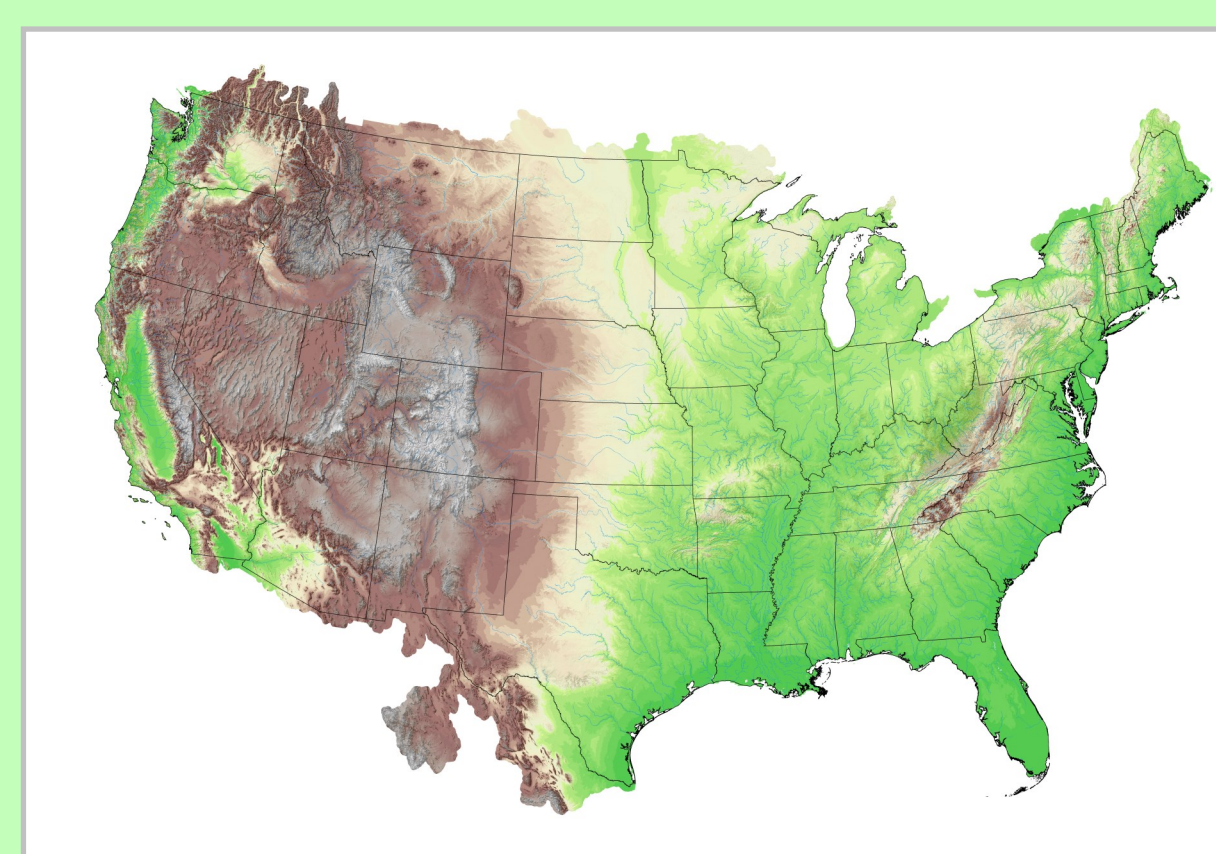
Catchment Indexing Process CIP

The CIP tool processes state-submitted geospatial data and, using NHDPlus value-added attributes and acceptance thresholds, associates state original data with the corresponding NHDPlus catchments. The CIP process leverages the following NHDPlus value-added attributes and features to make this association: 1) Stream level, 2) Hydrologic Sequence Number, 3) Level Path, 4) Artificial Path and 5) Divergences.



The Power of Catchment Indexing: Unlocking the NHDPlus Network

Each NHDPlus catchment is related to an NHDPlus flowline, allowing access to all the NHDPlus network tools, attribute information, and decision support technology. Once data are processed through the CIP tool, each state Assessment Unit is associated with a catchment and thus provides an avenue to the NHDPlus tools and information.



Access to National Models such as SPARROW and HAWQS

NHDPlus v2.1 Watershed Characterization Report

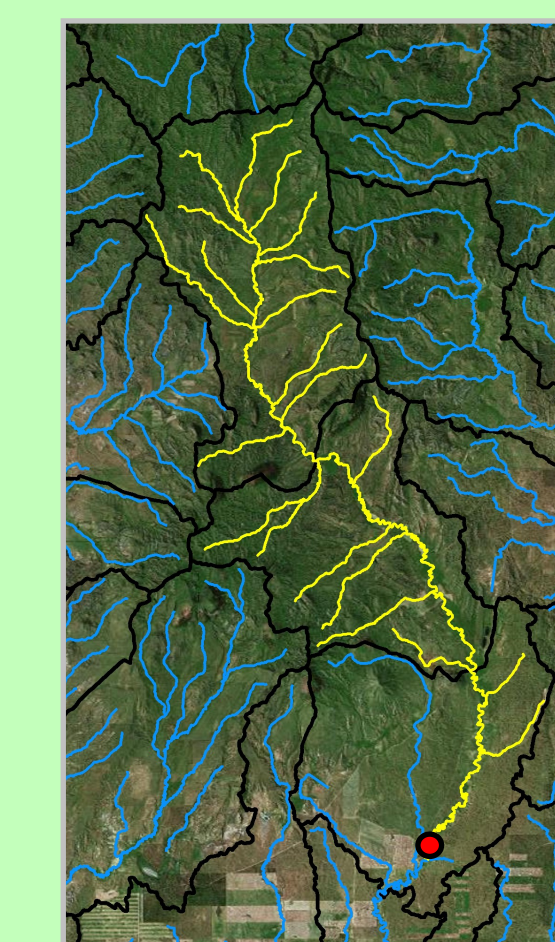
At the watershed outlet:

- Stream Name: Bridge Creek
- Stream Order: 3
- Stream Level: 4
- Mean annual flow volume (EROM): 39.4 cfs
- Mean annual flow volume (Vveg): Not Available
- Mean annual flow velocity (EROM): 1.1 fps
- Mean annual flow velocity (Vveg): Not Available

For the catchment (local area draining directly to the selected stream segment):

- Catchment area measurement: 4.07 km²
- Mean annual temperature: 6.38 C
- Mean annual precipitation: 846.9 mm
- 2011 National Land Cover Dataset (class code):
 - Open Water (1): 0%
 - Low Intensity Residential (21): 6.6%
 - Commercial (23): 2.0%
 - Deciduous Forest (41): 21.5%
 - Evergreen Forest (42): 2%
 - Mixed Forest (43): 4%

Access to Value Added Attributes such as Land Use, Mean Annual Flow, and Mean Annual Precipitation



Access to flow direction and characteristics to delineate upstream/downstream watersheds