WEST VIRGINIA WATERSHED ASSESSMENT PILOT PROJECT

Upper Mon Water Trail ©www.monriver.org

Monongahela End User/Stakeholder Workshop
April 3, 2012

Proposed Interactive Web Mapping Application

1. Intro to web mapping
2. Example screenshots of draft tool format
3. Potential use scenarios
4. Existing web mapping tool examples

Interactive Web Maps

- An **interactive web map** is an online map that allows users to view/search spatial data as well as manipulate the scale and display of data, and is often dynamically linked to a database containing routinely updated information.
- Generally interchangeable terms:

  Web mapping application

  Dynamic online mapping

  Online map/data viewer

  Decision support tool*

Interactive Web Maps

Basic Principles/ Formats

- Ability to zoom in/zoom out to area of interest and pan around map
- Ability to search for area of interest (such as by watershed, stream name, county or town)
- Base layers include: political boundaries, roads, hydrography, elevation, topographic maps, aerial imagery
- Ability to retrieve attribute information about map features (such as water quality sampling data from sample station points)
- **NOTE**: this is a GIS-based analysis and would still require field visits/verification
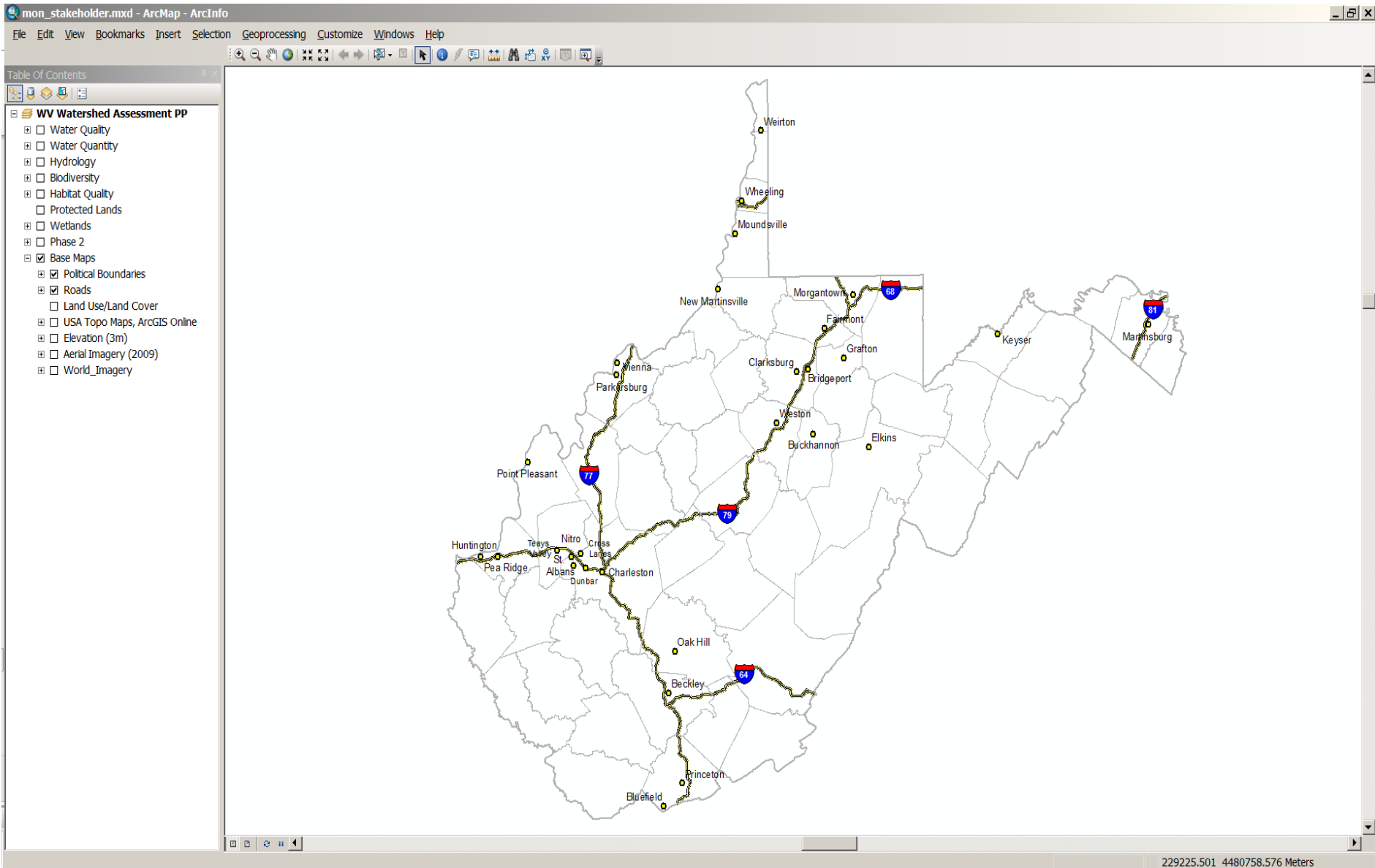
Example of default base map, with layer groups
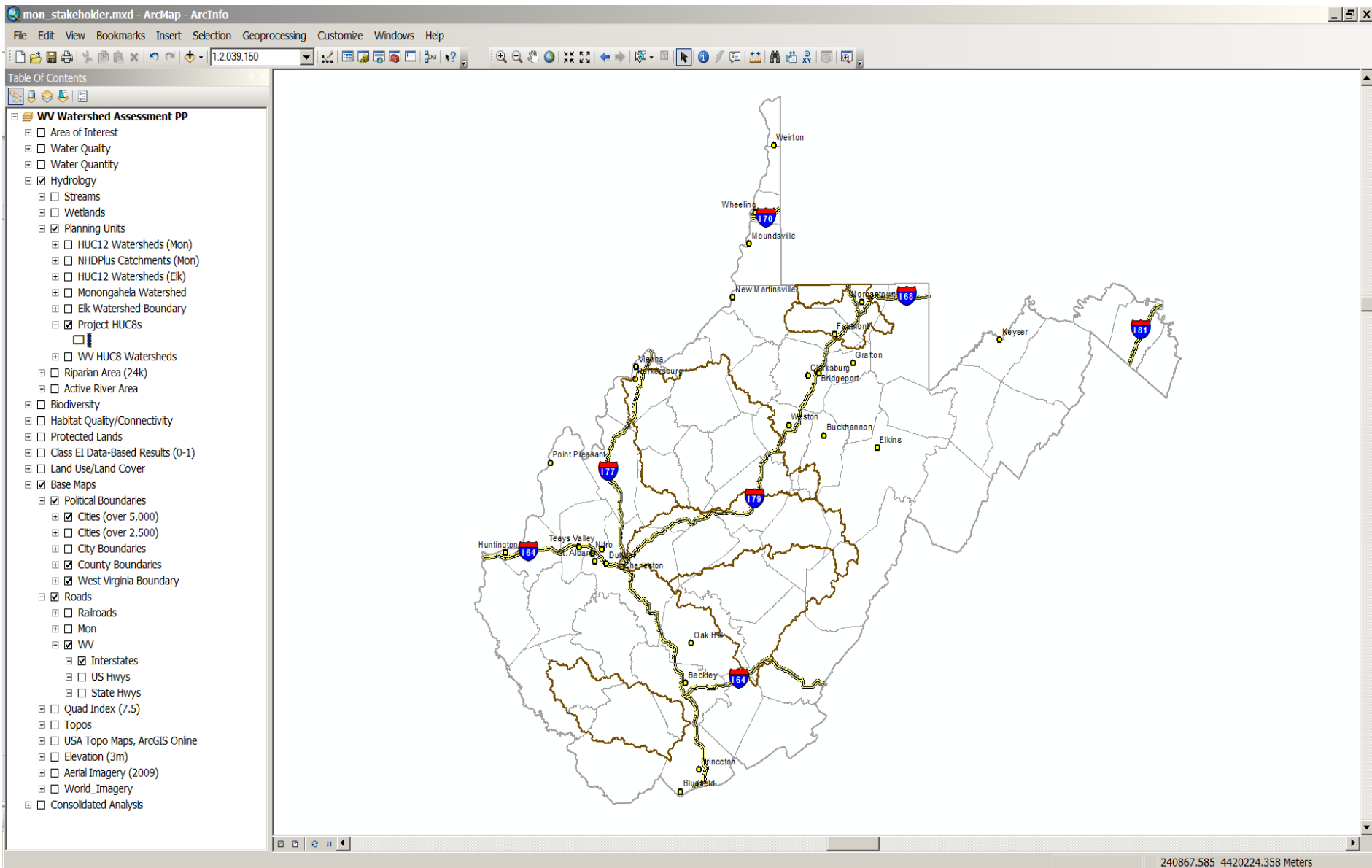
WV Watershed Assessment Pilot Project Initial HUC8s
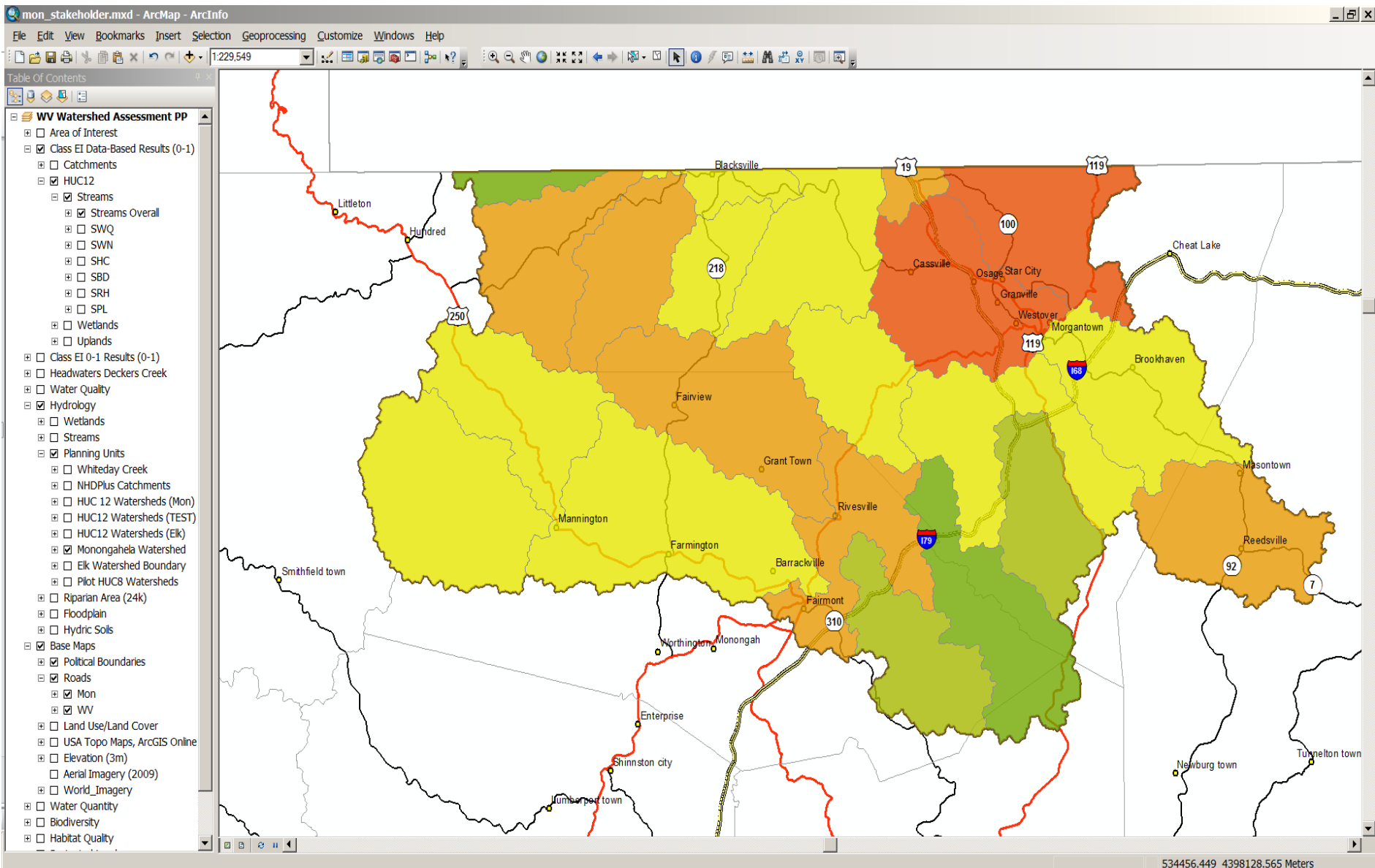
Monongahela – HUC12 Level
Streams Overall Results*
(*All results presented are **preliminary** and currently used for illustrative purposes only)
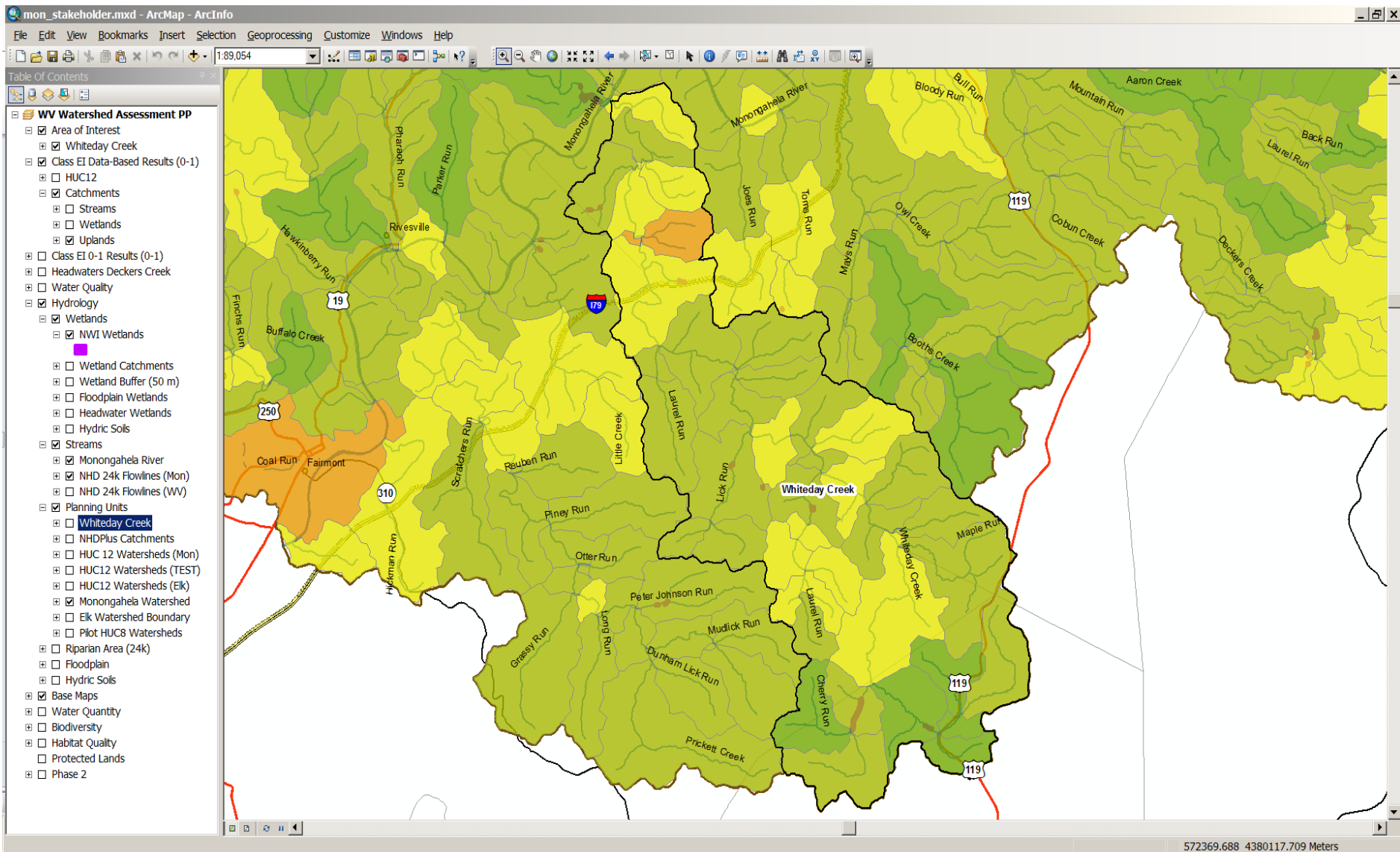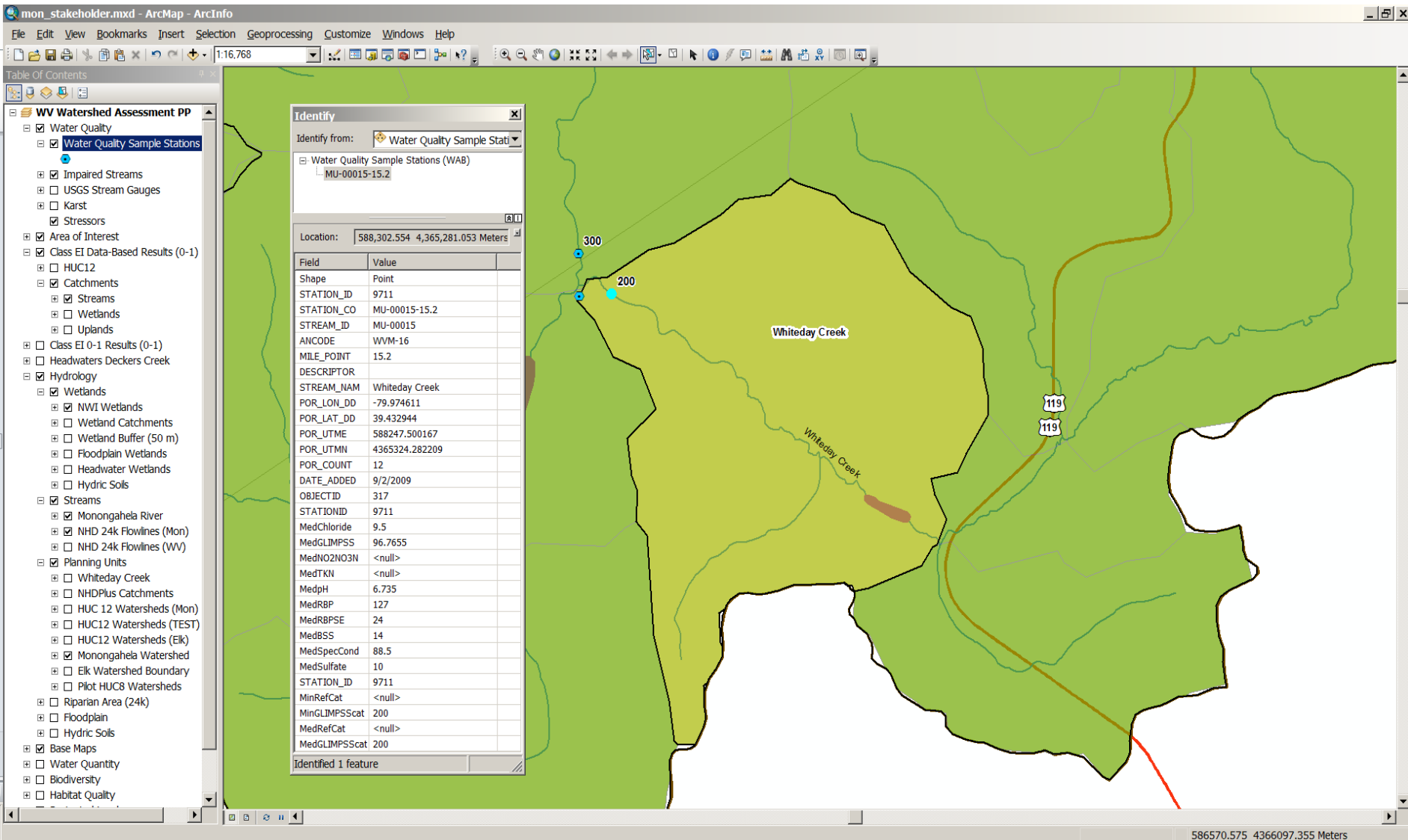
A note on symbology...

Streams Overall
- 0.39 - 0.46
- 0.47 - 0.53
- 0.54 - 0.61
- 0.62 - 0.68
- 0.69 - 0.75

Wetlands Overall
- 0.04 - 0.15
- 0.16 - 0.26
- 0.27 - 0.37
- 0.38 - 0.48
- 0.49 - 0.59
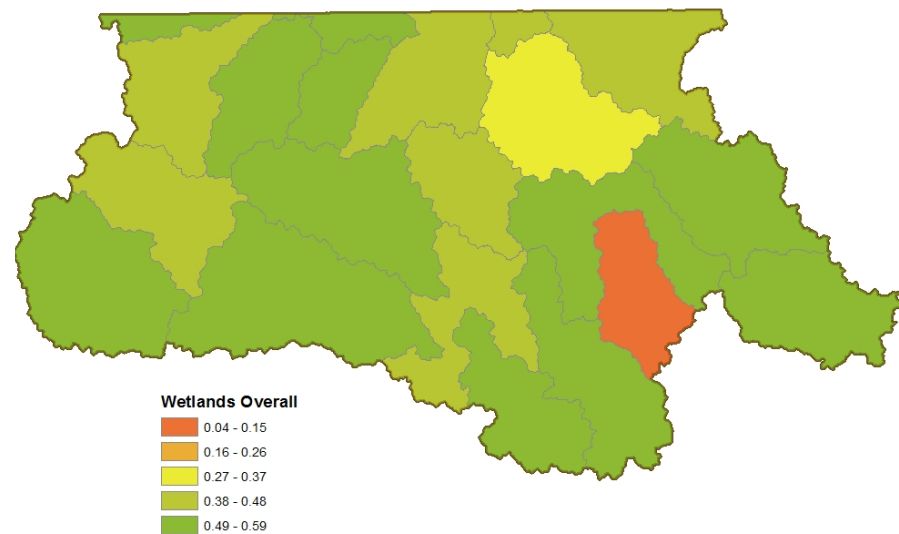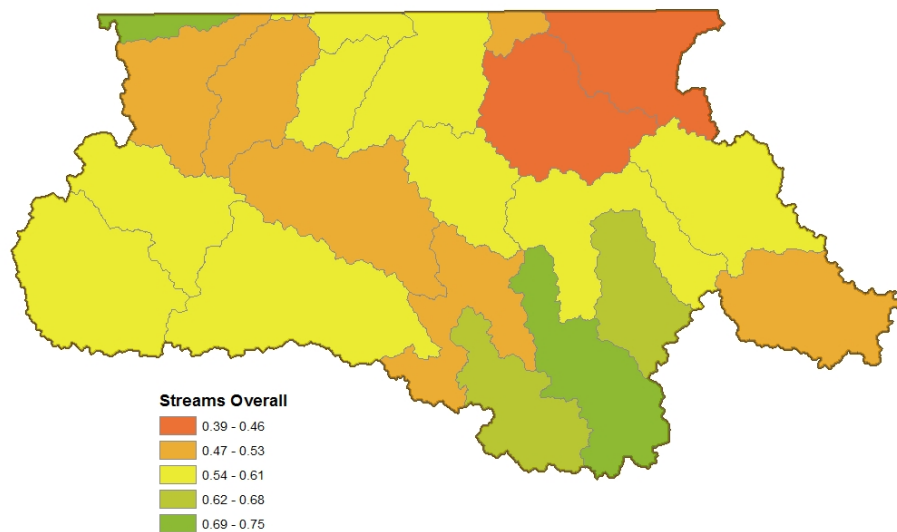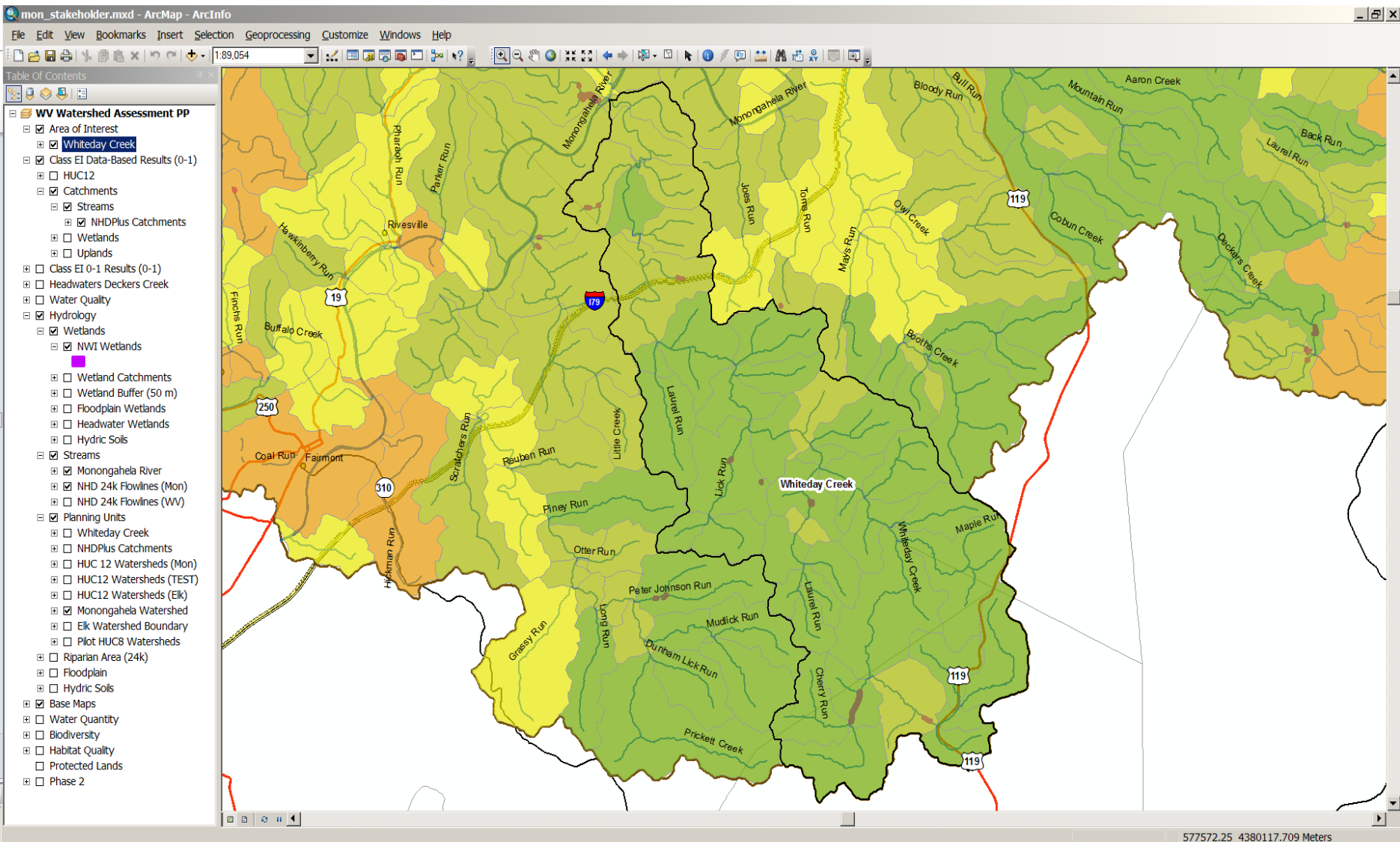
Whiteday Creek – Catchment Level
Streams Overall Results
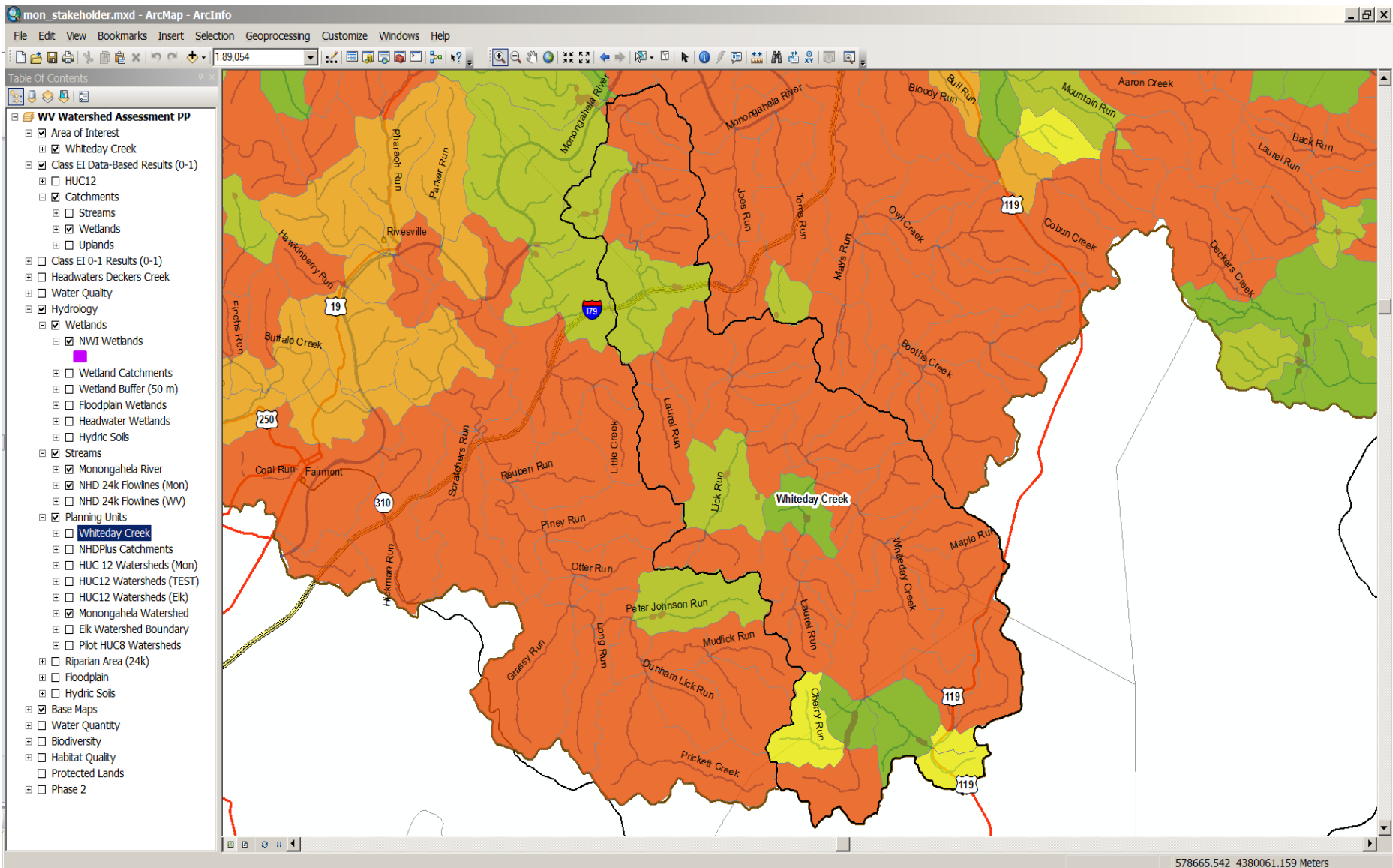
Whiteday Creek – Catchment Level
Wetlands Overall Results

Whiteday Creek – Catchment Level
Uplands Overall Results

Whiteday Creek – Catchment Level
Water Quality Sample (WAB) Attribute Information

Base layers

1. Political boundaries/Hydrography
2. Land use/land cover
3. Topographic maps
4. Aerial imagery
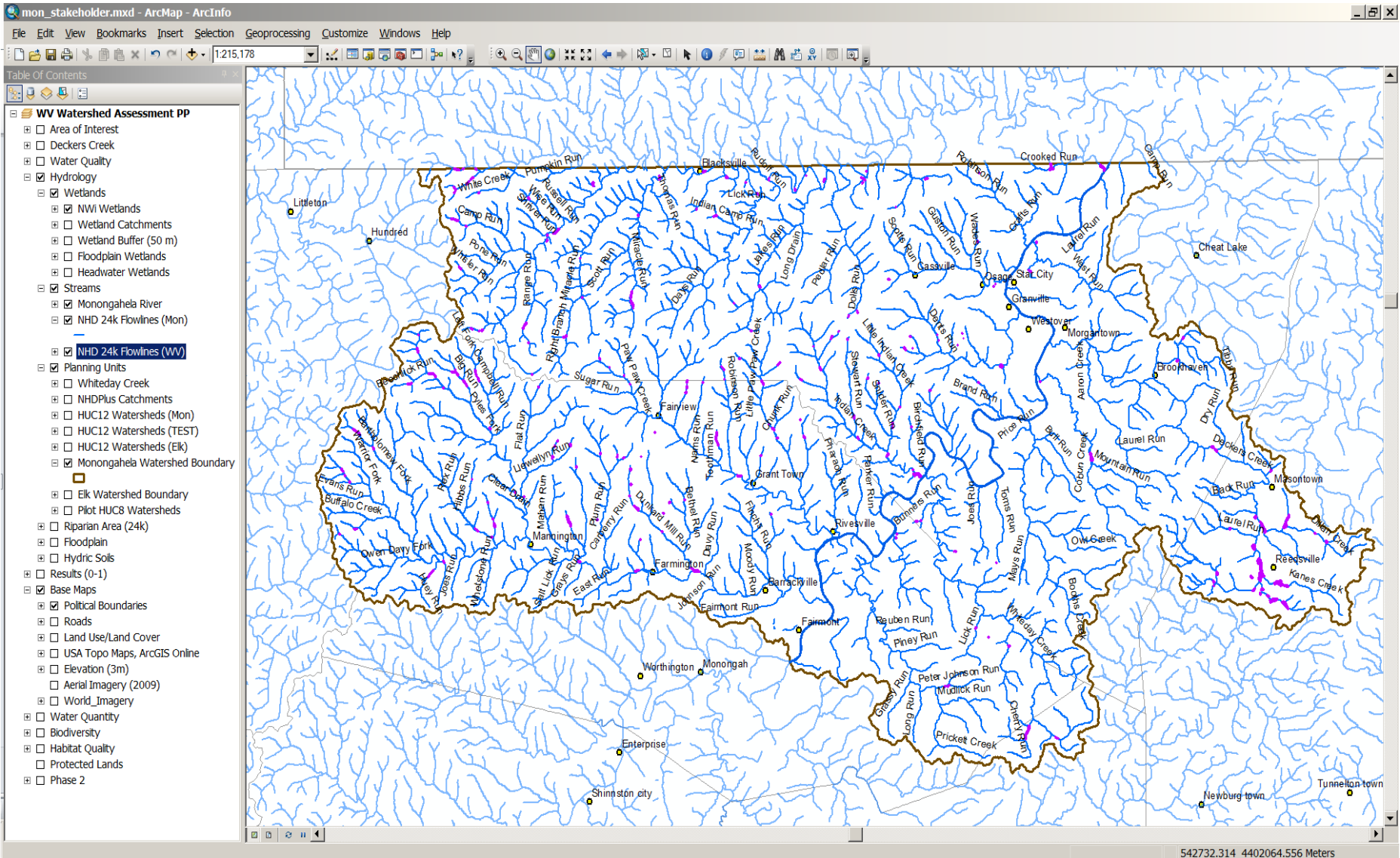
Monongahela– HUC12 Level
County/city data; NHD 24k flowlines, wetlands, watershed boundary
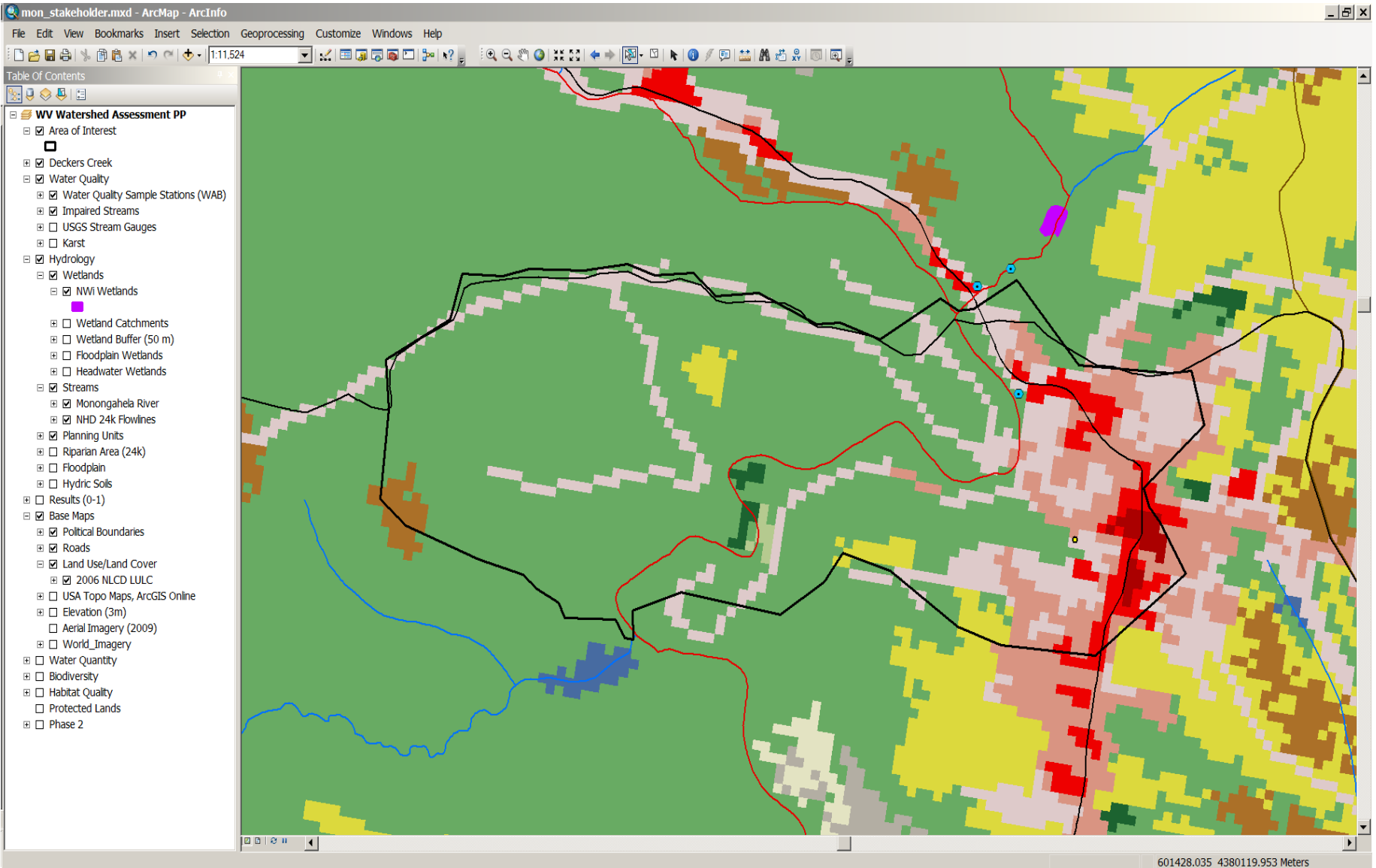
Deckers Creek – Catchment Level
NLCD 2006 Land use/land cover
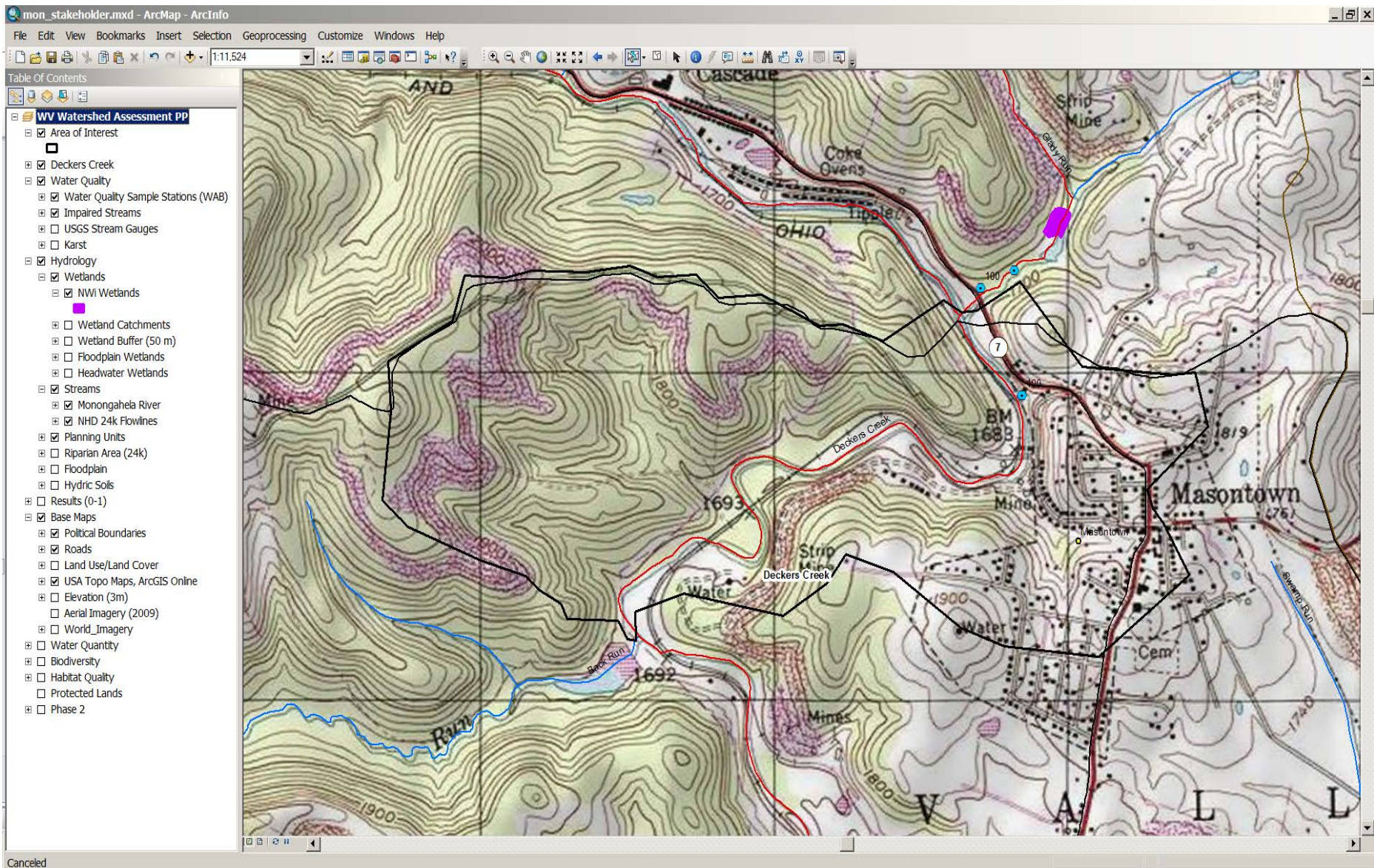
Deckers Creek – Catchment Level
Topographic maps
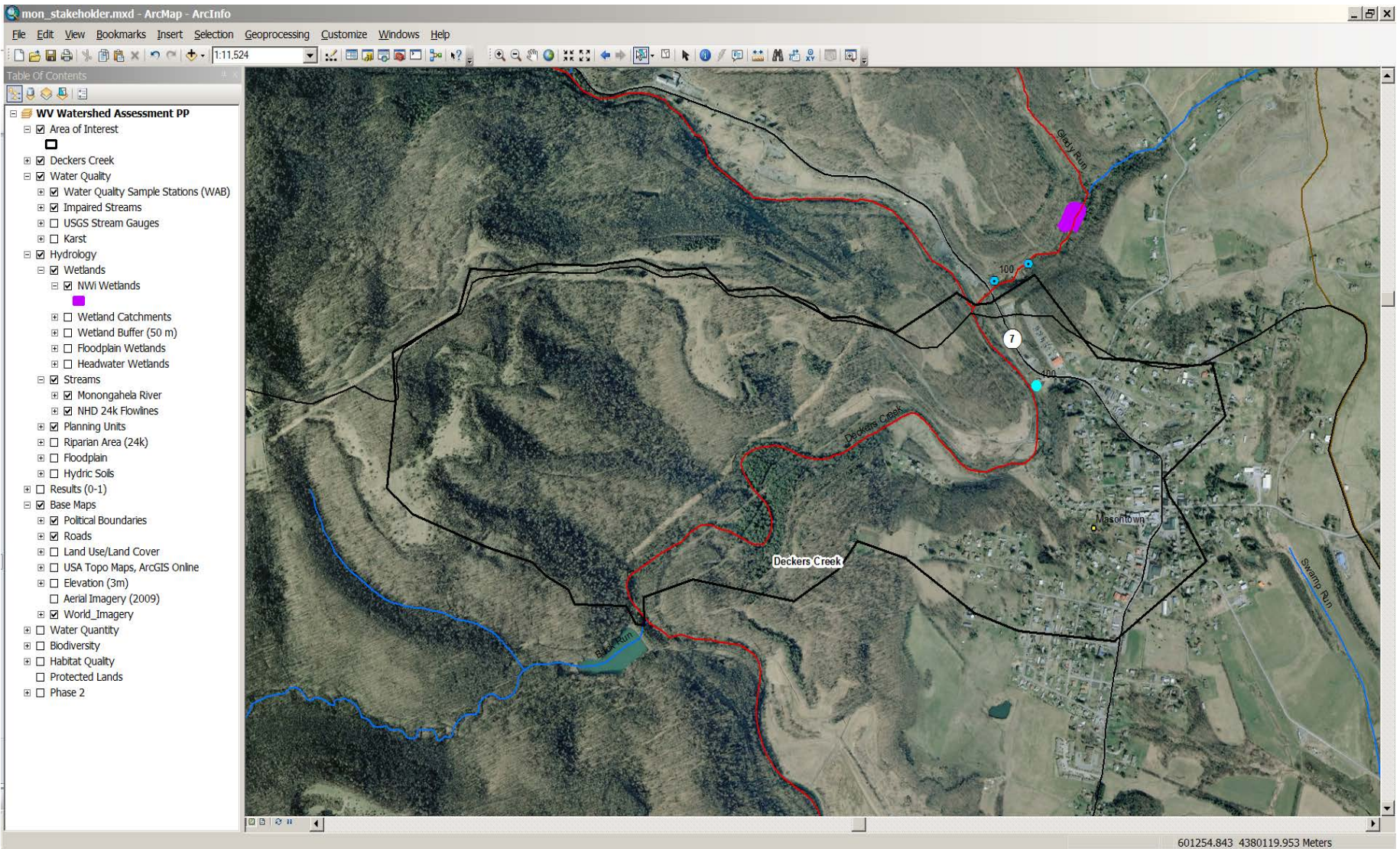
Deckers Creek – Catchment Level
Aerial imagery

Mon wetlands

Dunkard Creek

COMMENTS/QUESTIONS?

Potential Use Scenarios

1. Streams/Riparian Protection – Biodiversity
2. Streams/Riparian Restoration – Water Quality
3. Wetlands Restoration – Wetland Habitat
4. Uplands Protection – Habitat Connectivity

Streams/Riparian Protection
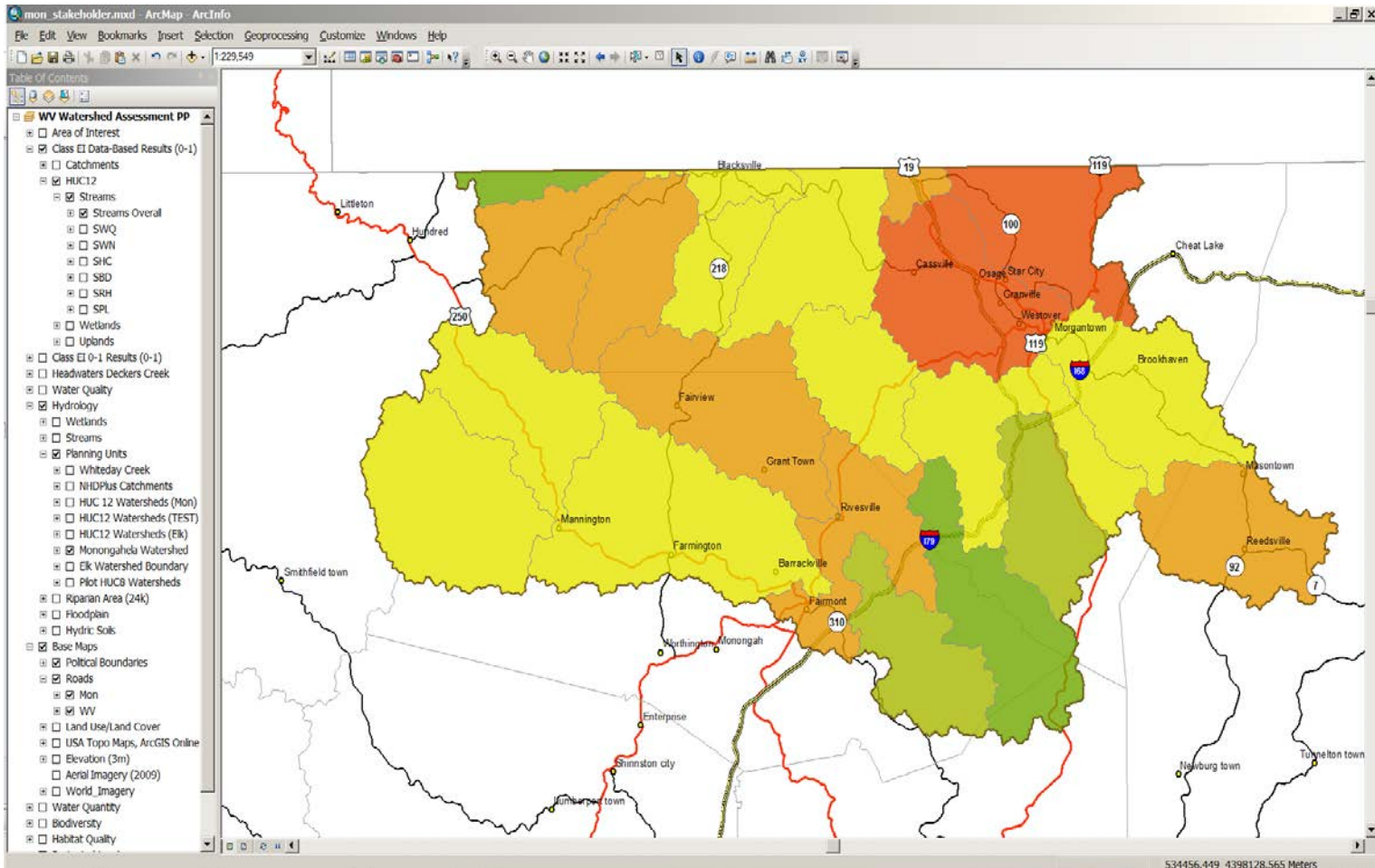
Monongahela – HUC12 Level
Streams Overall Results
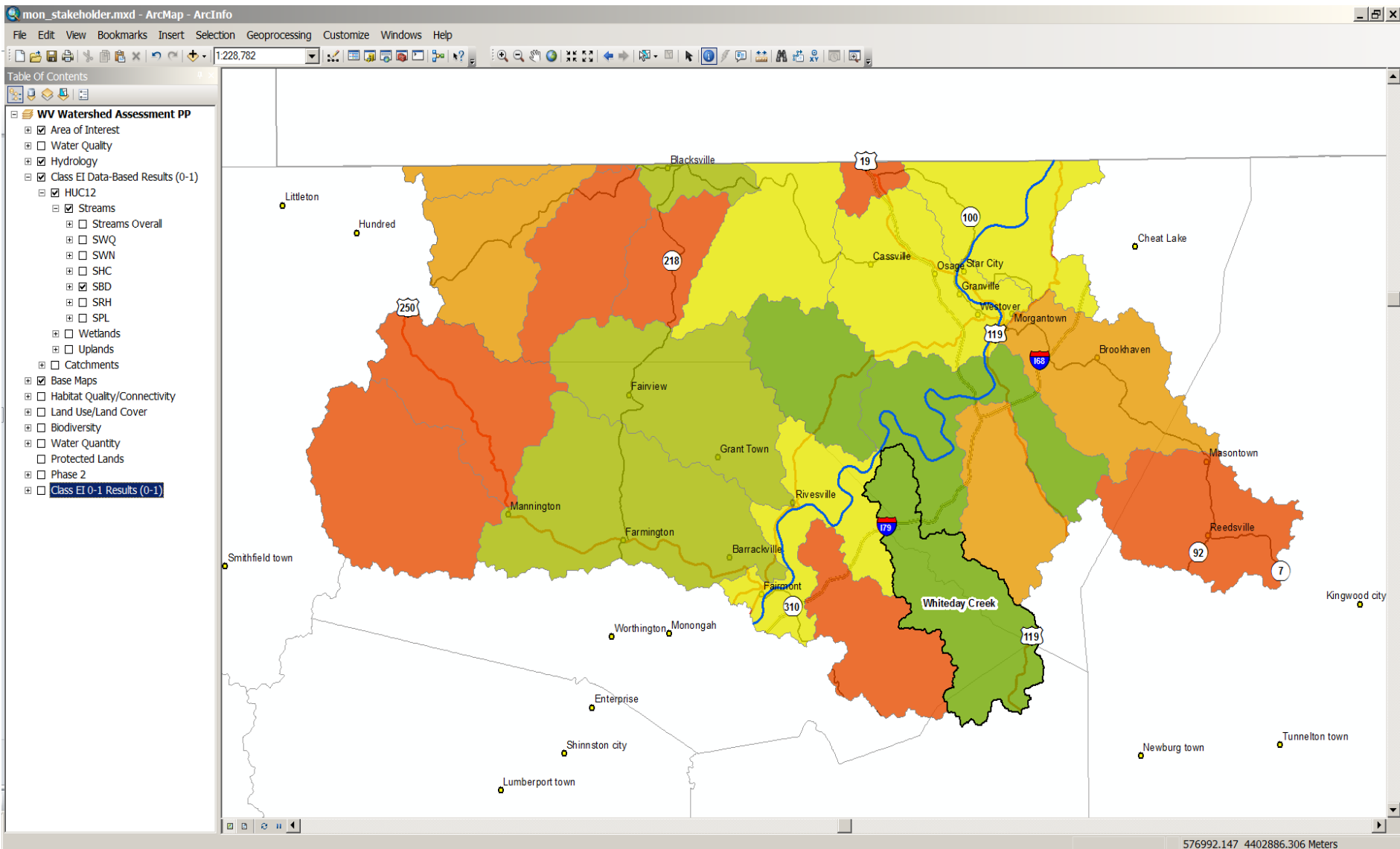
HUC12 Level - Streams Biodiversity Results
Whiteday Creek
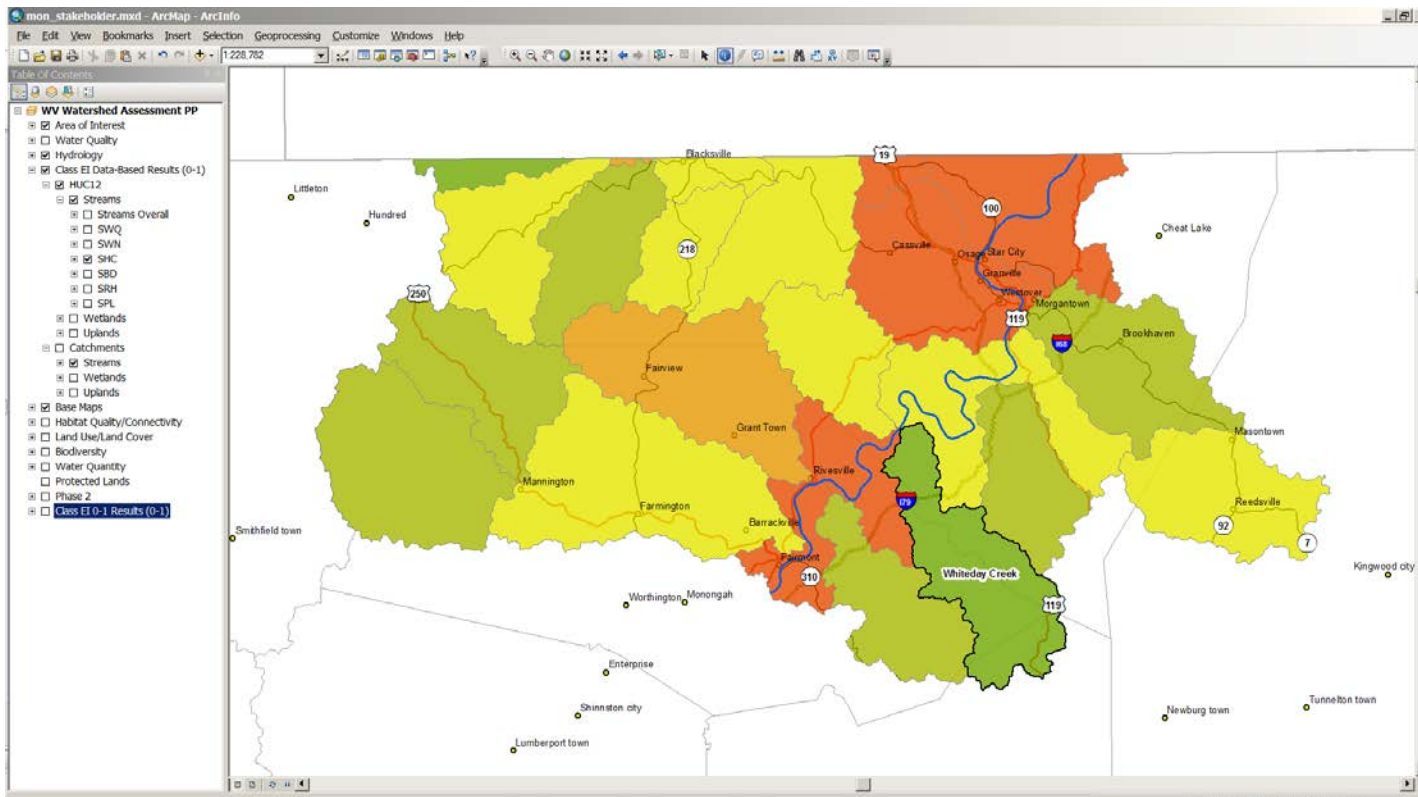
HUC12 Level Streams - Hydrologic Connectivity
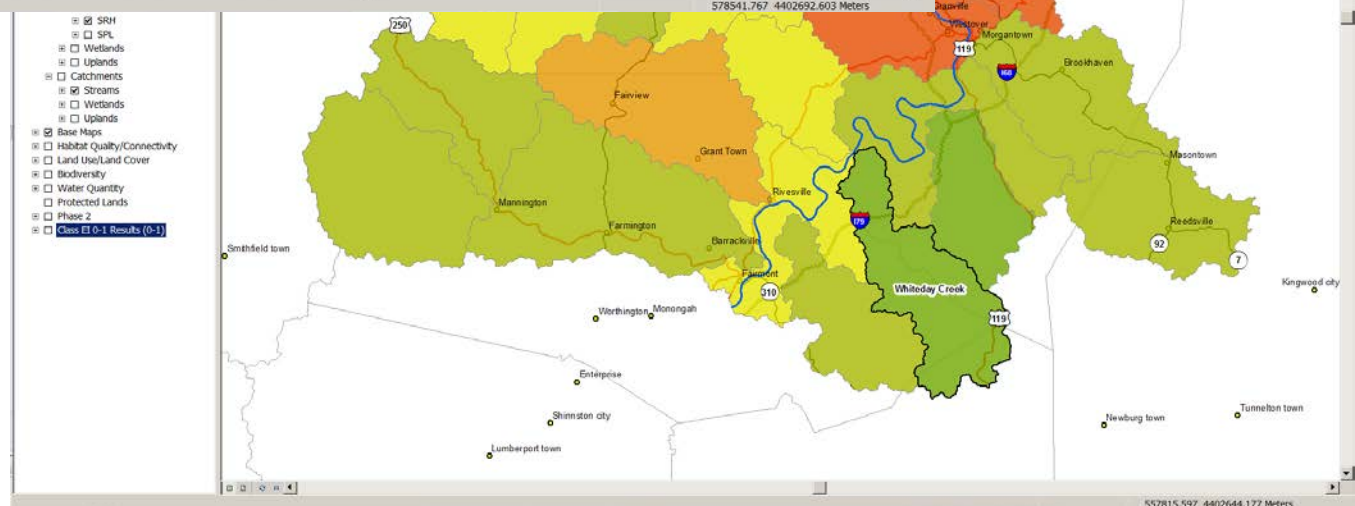
HUC12 Level Streams - Riparian Habitat
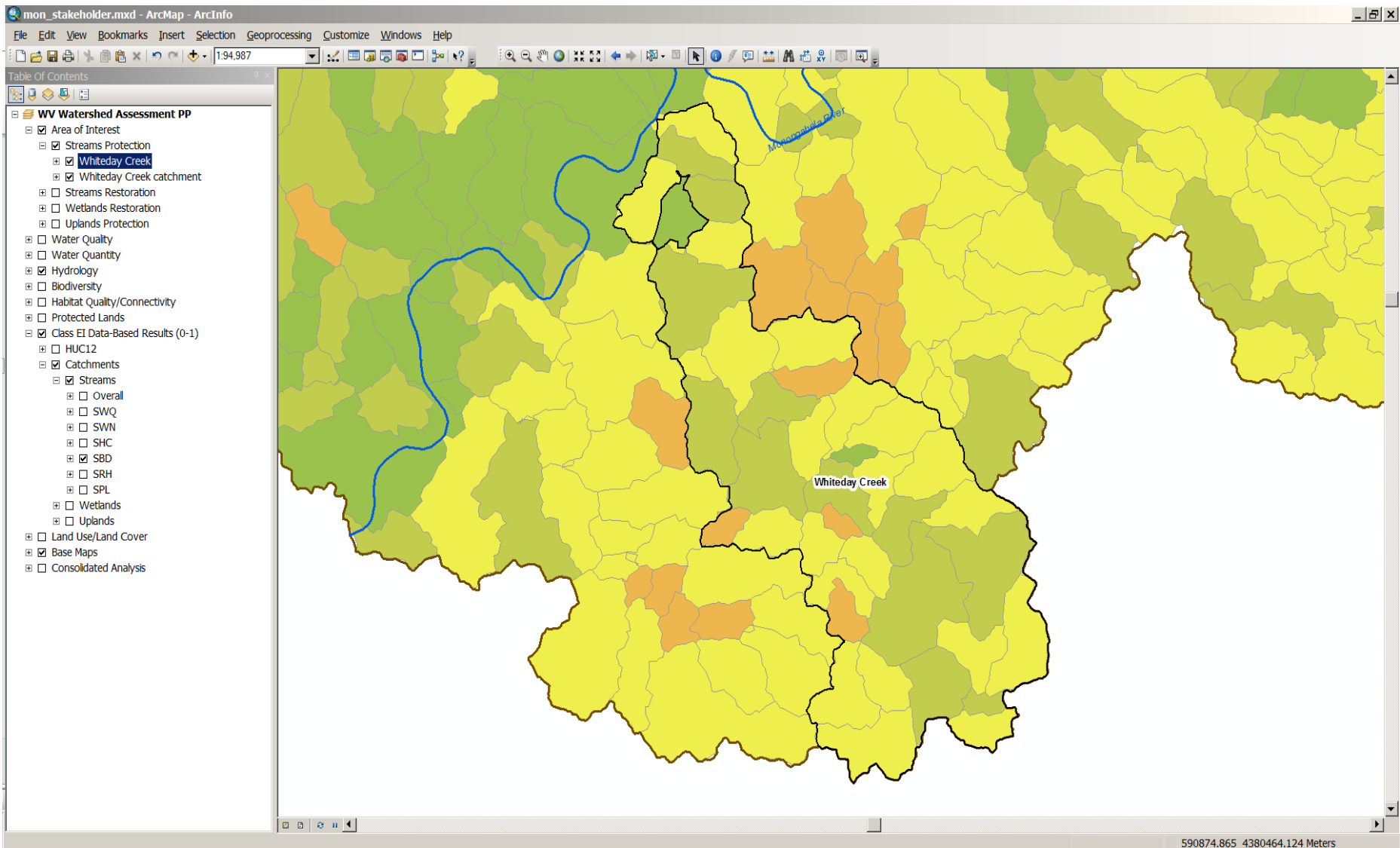
Whiteday Creek – Catchment Level
Streams Biodiversity
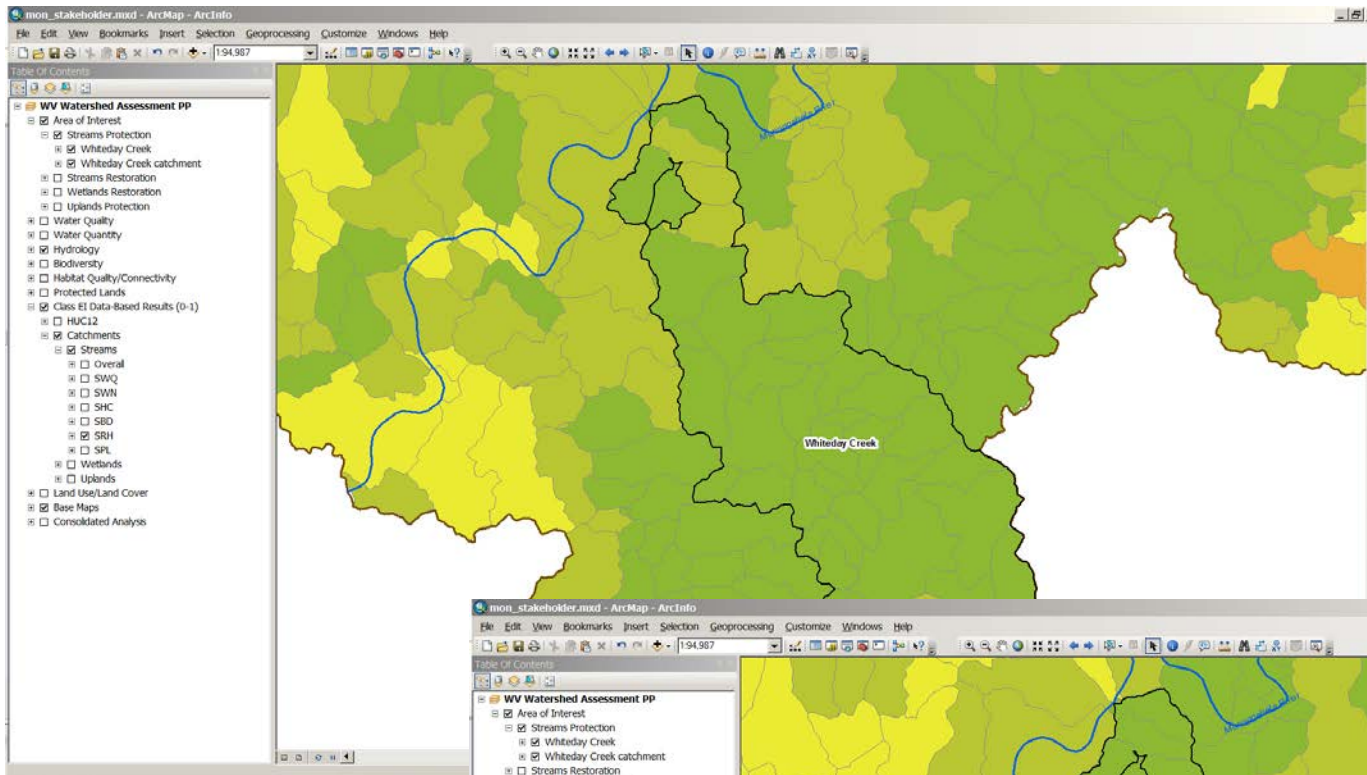
Whiteday Creek
Catchment Level
Streams
Riparian Habitat

Whiteday Creek
Catchment Level
Streams
Water Quantity
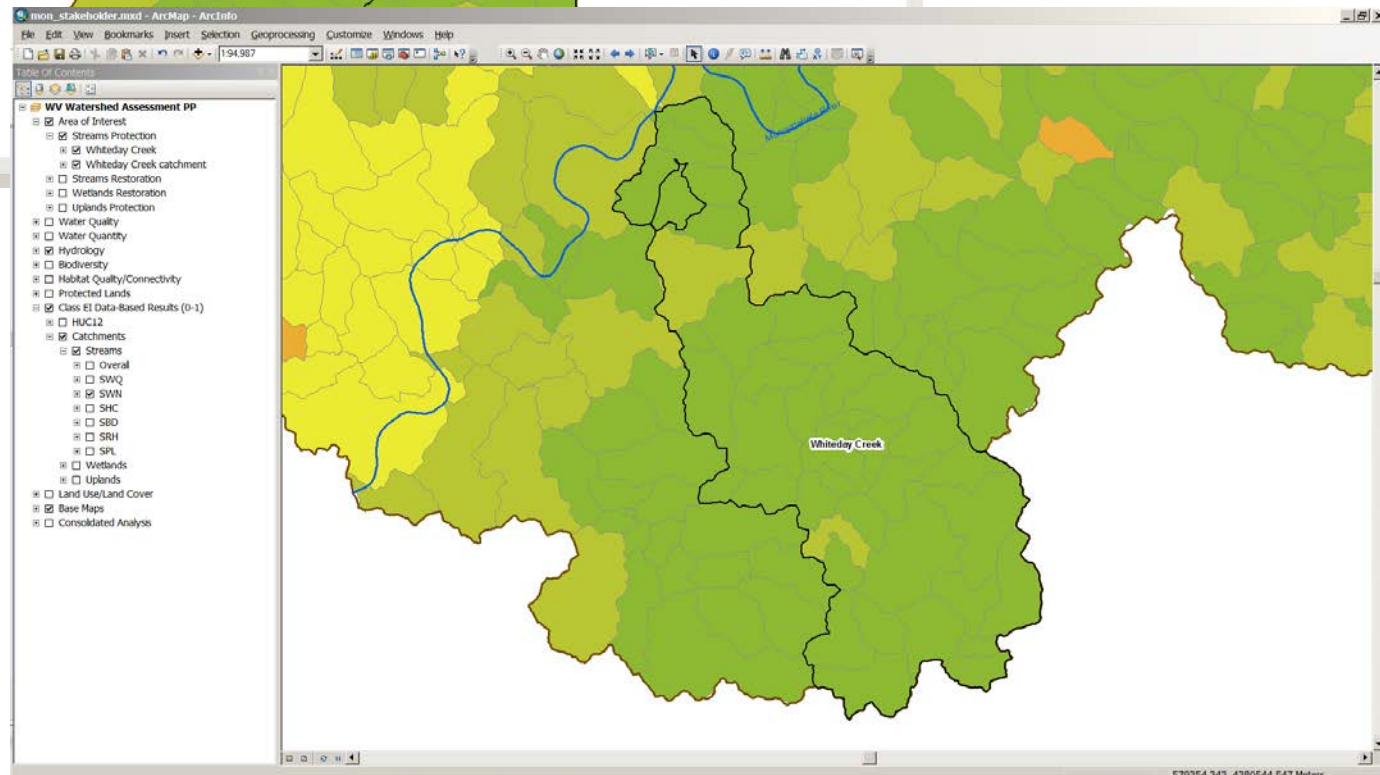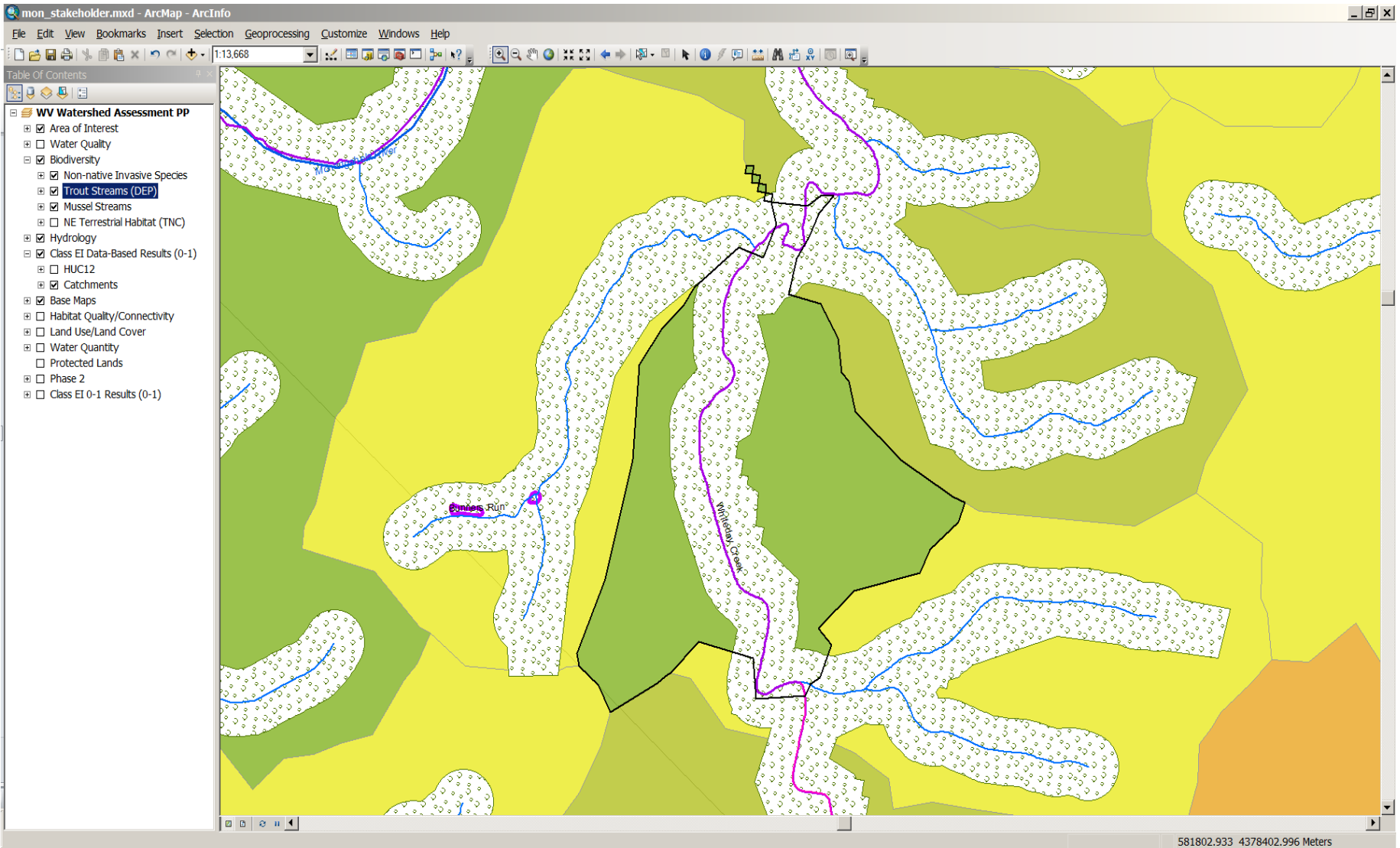
Whiteday Creek - Catchment Level
Active River Area/Riparian Area; Mussel, trout streams (NNIS)

Streams/Riparian Restoration
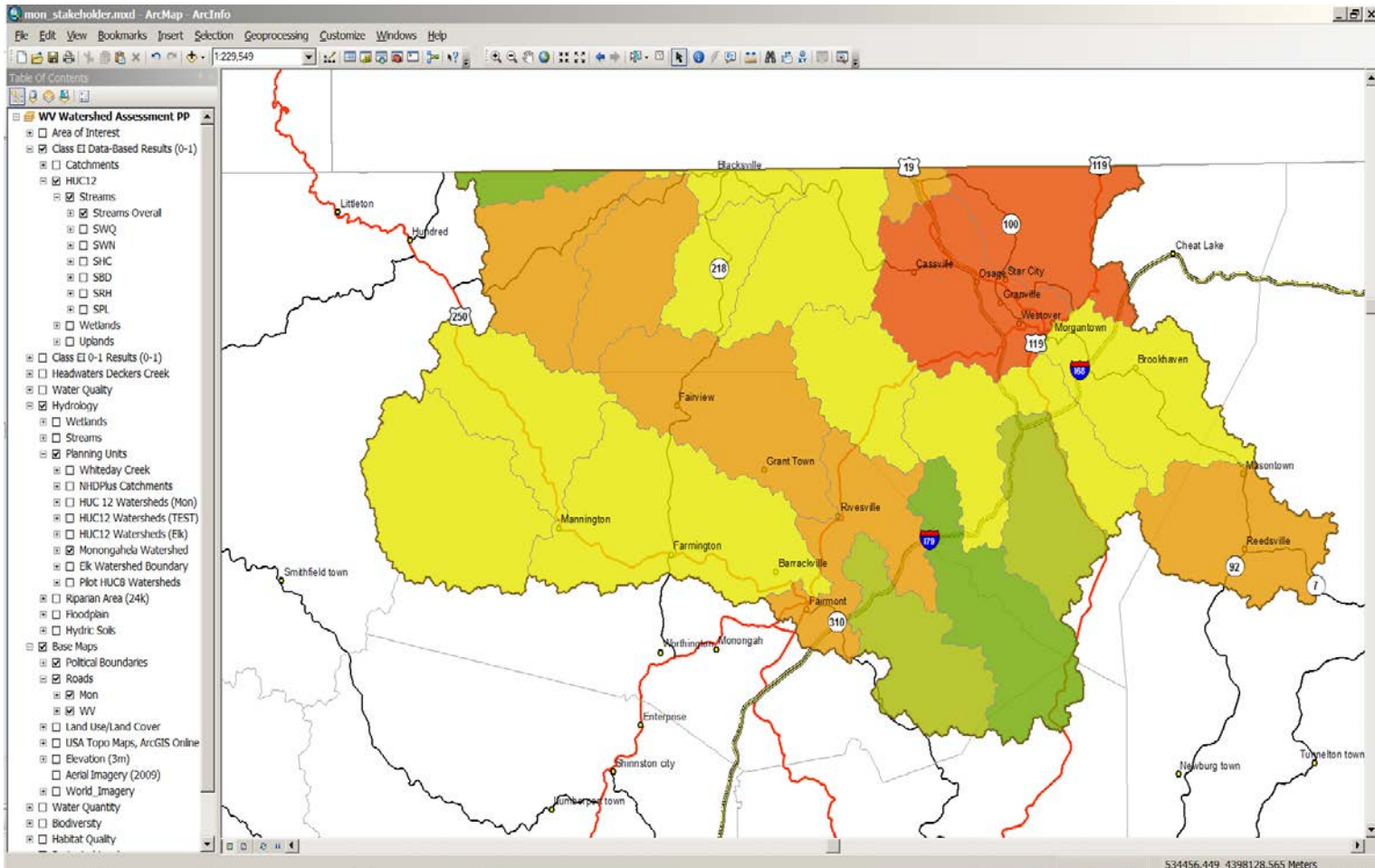
Monongahela – HUC12 Level
Streams Overall Results

Streams/Riparian Restoration
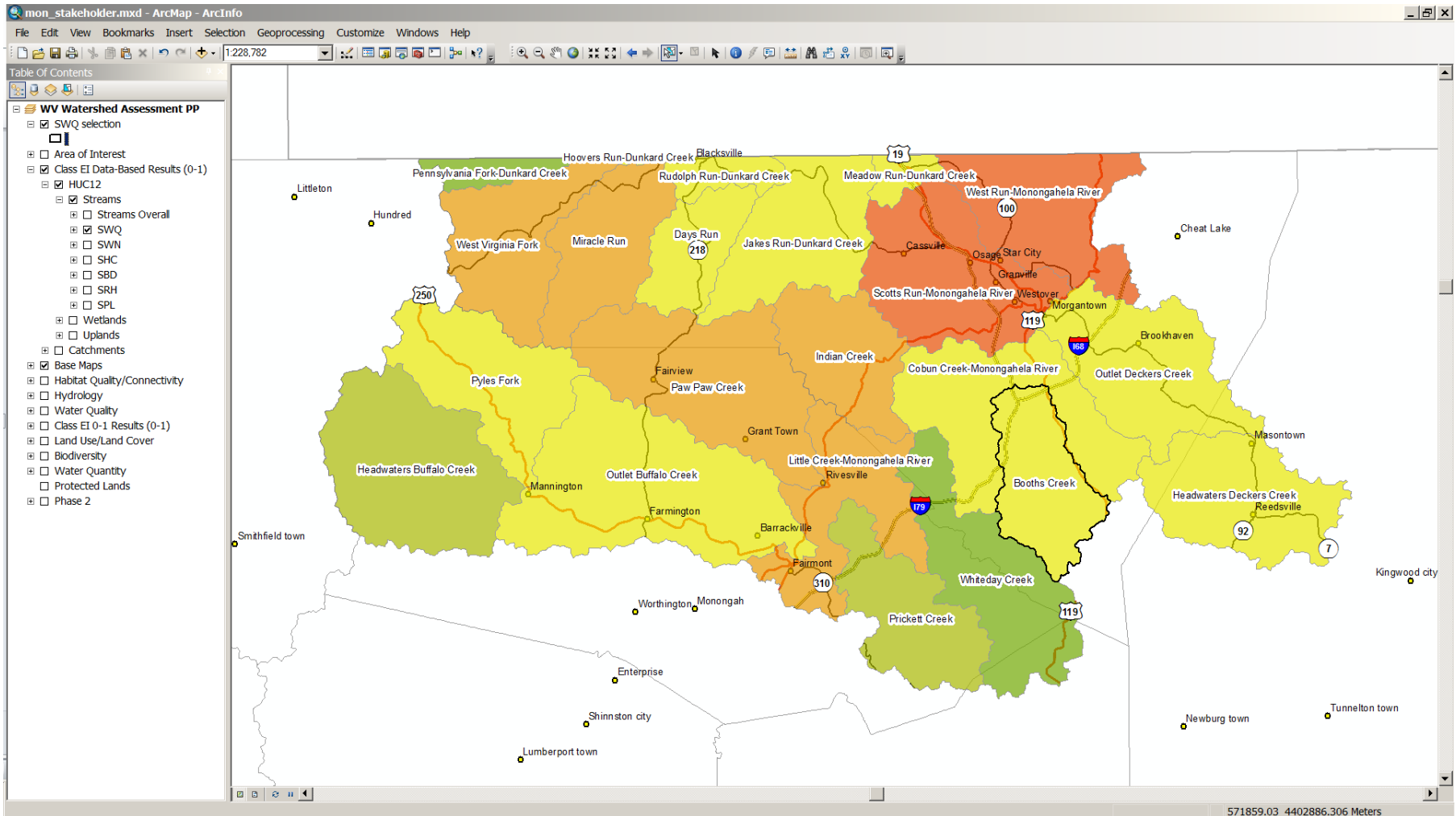
HUC12 Level- Streams Water Quality Index Results
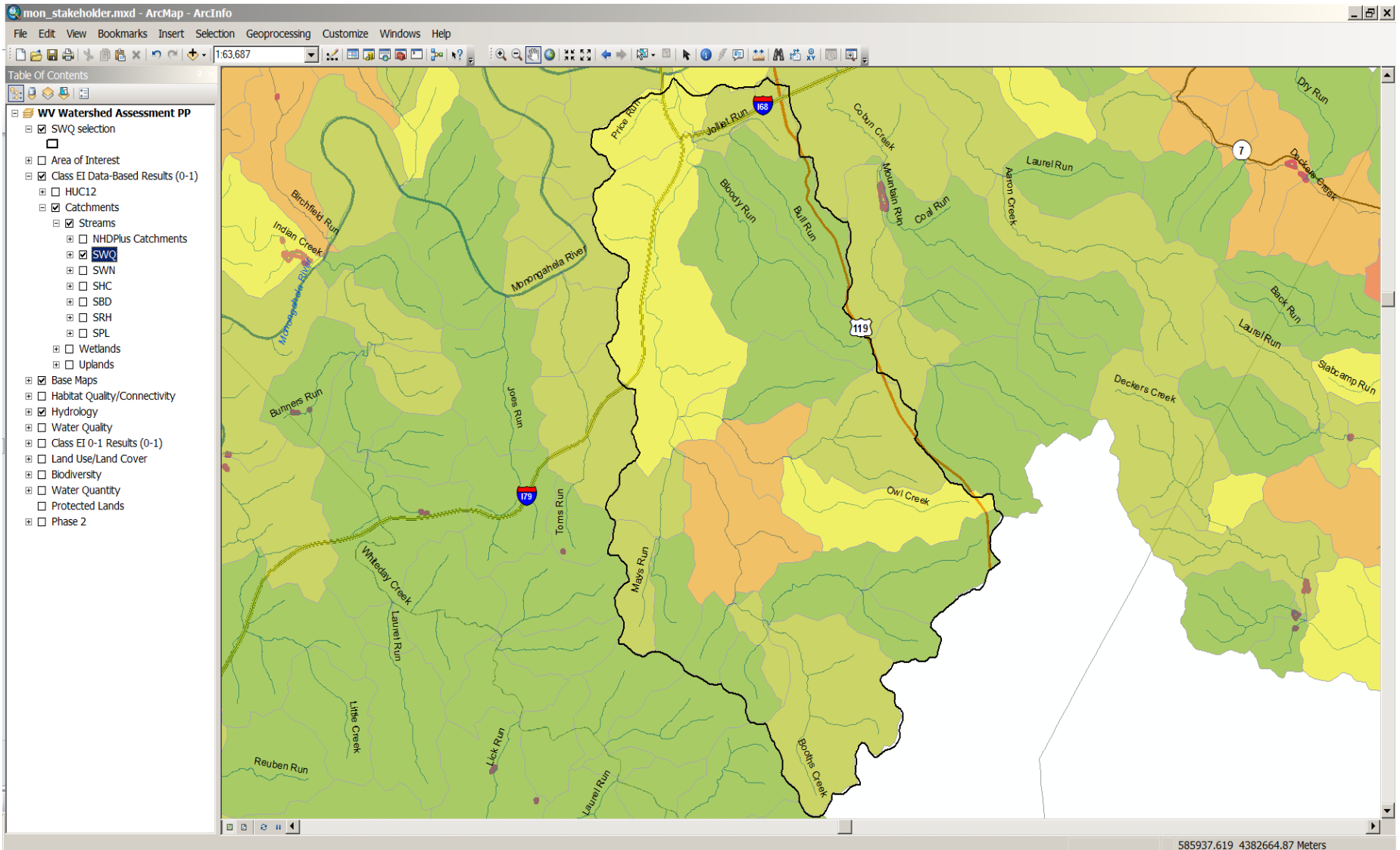
Booths Creek – Catchment Level
Streams Water Quality Index Results
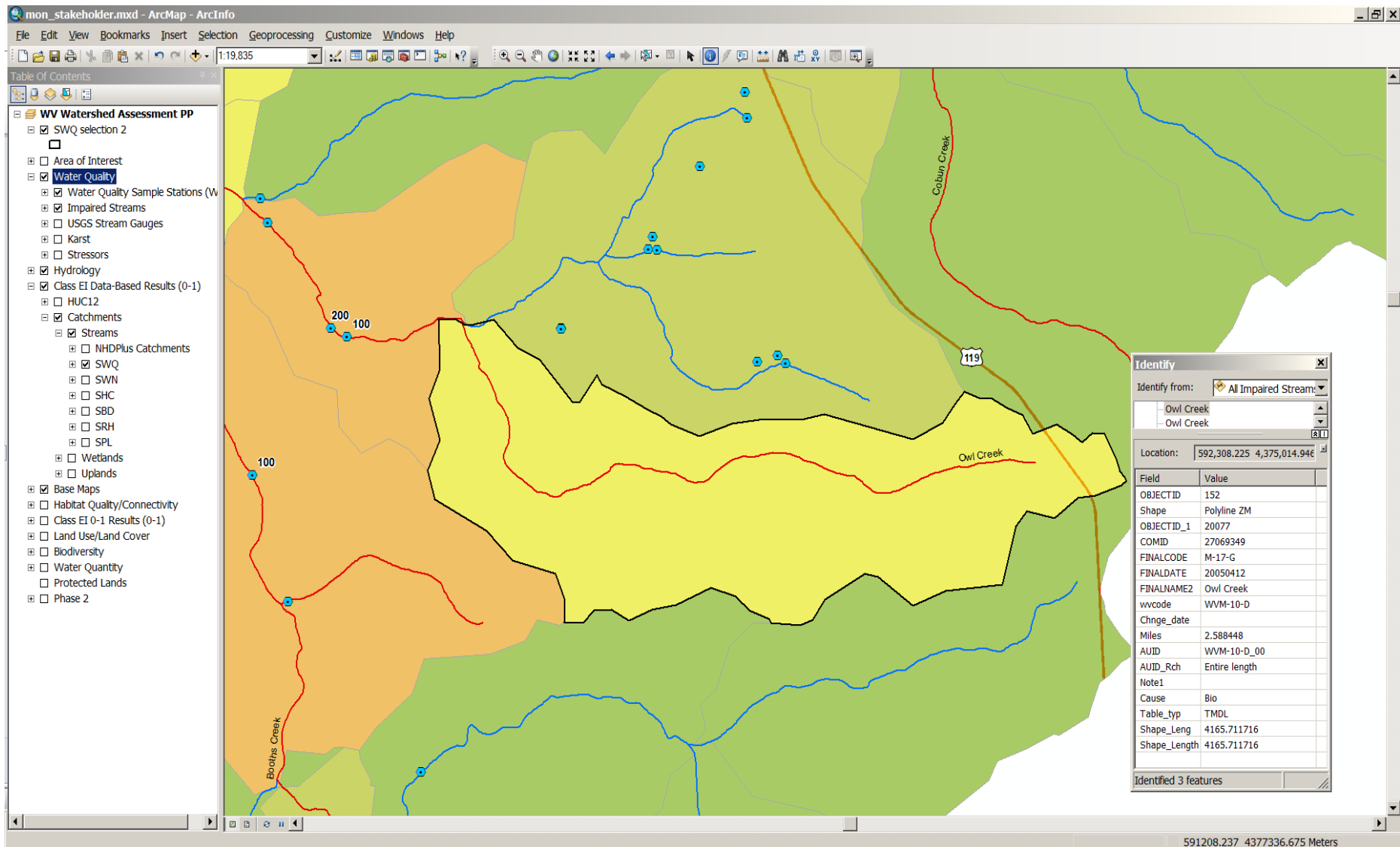
Booths Creek– Catchment Level
Water Quality Sample (WAB) data; Impaired Streams attribute information
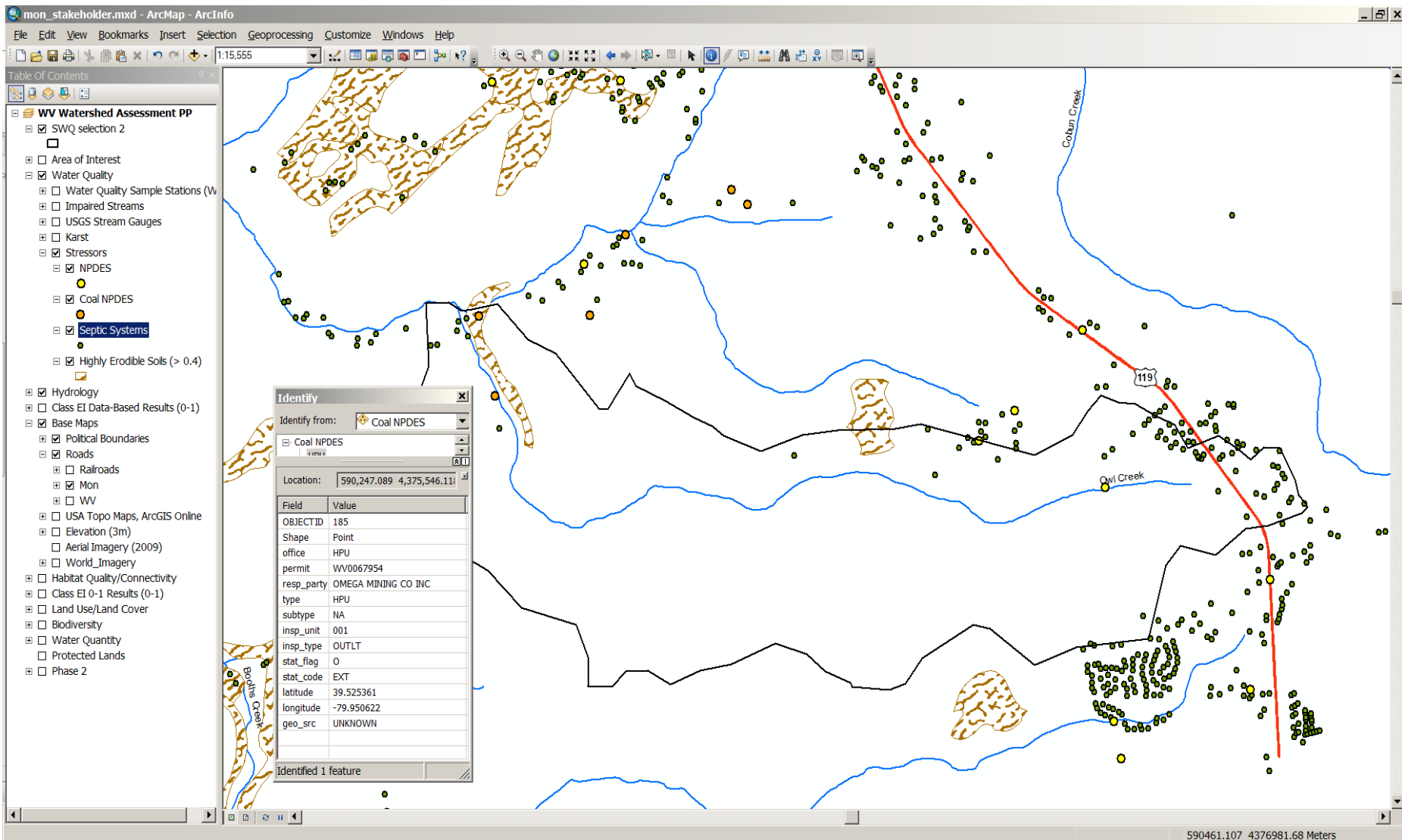
Booths Creek– Catchment Level
Highly erodible soils, potential septic systems,
NPDES, Coal NPDES w/ attribute information
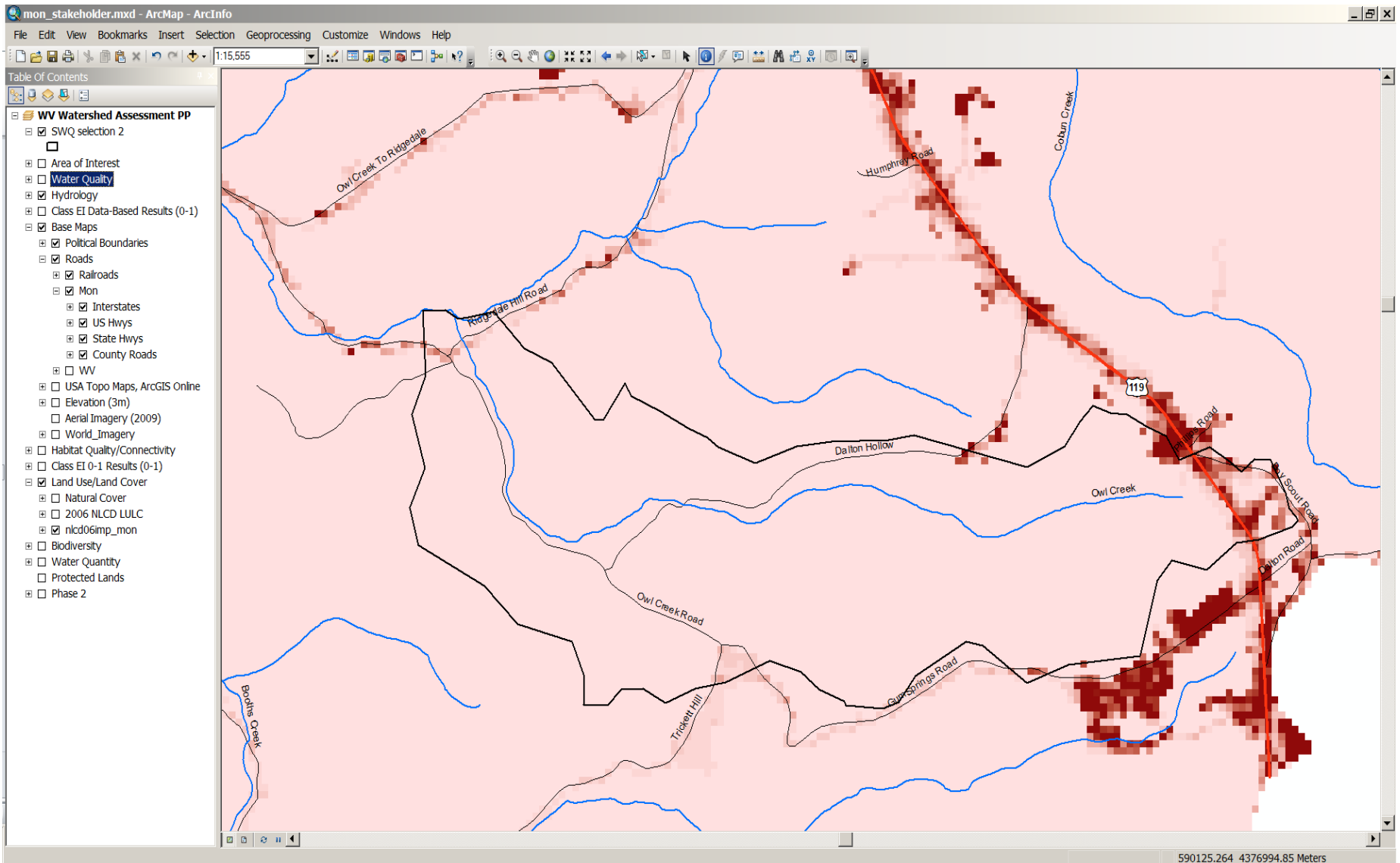
Booths Creek – Catchment Level
NLCD 2006 Percent imperviousness; County roads

Wetlands Restoration
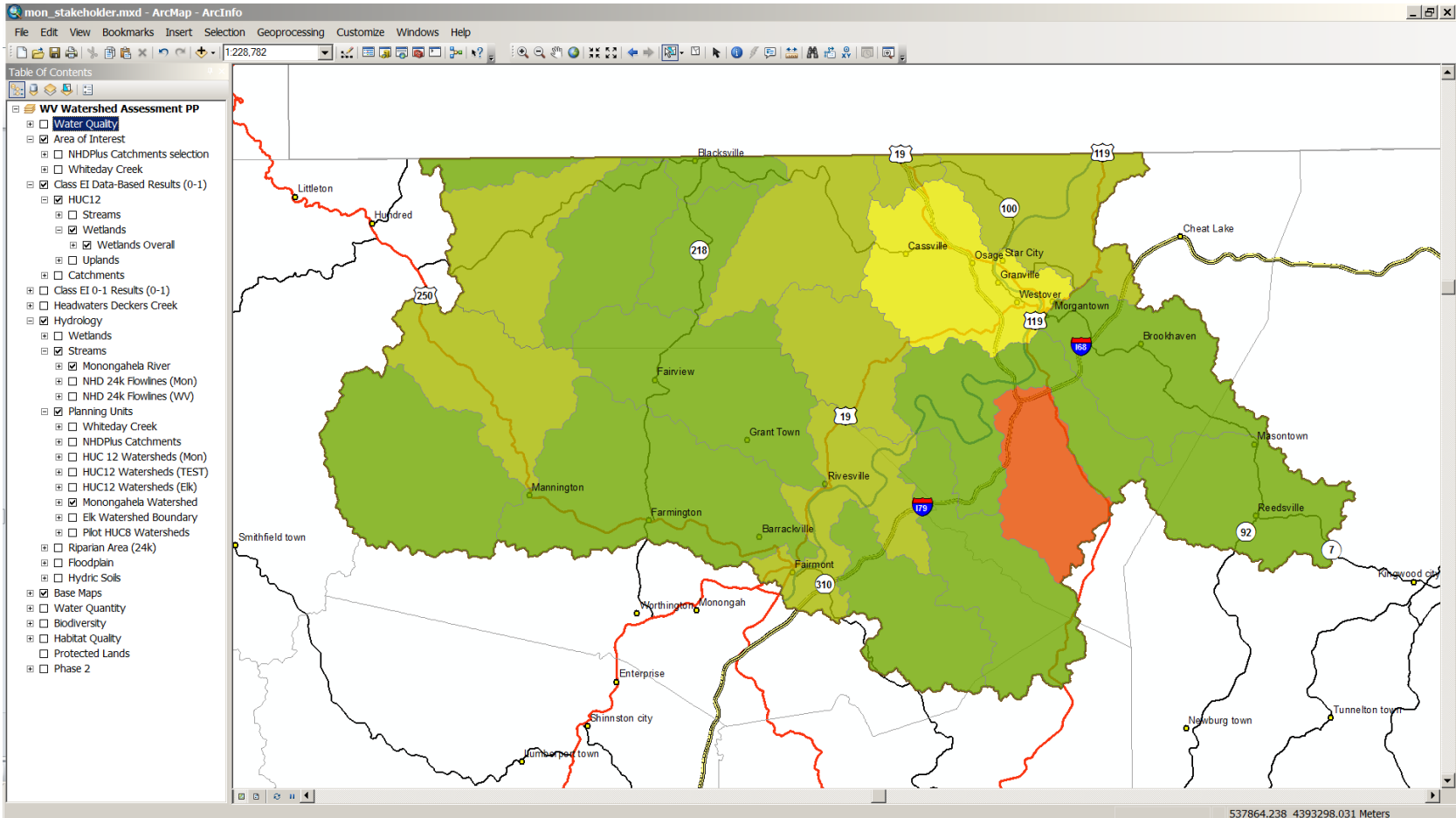
Monongahela – HUC12 Level
Wetlands Overall Results*
(*All results presented are **preliminary** and currently used for illustrative purposes only)

Wetlands
HUC12 Level
Water Quality
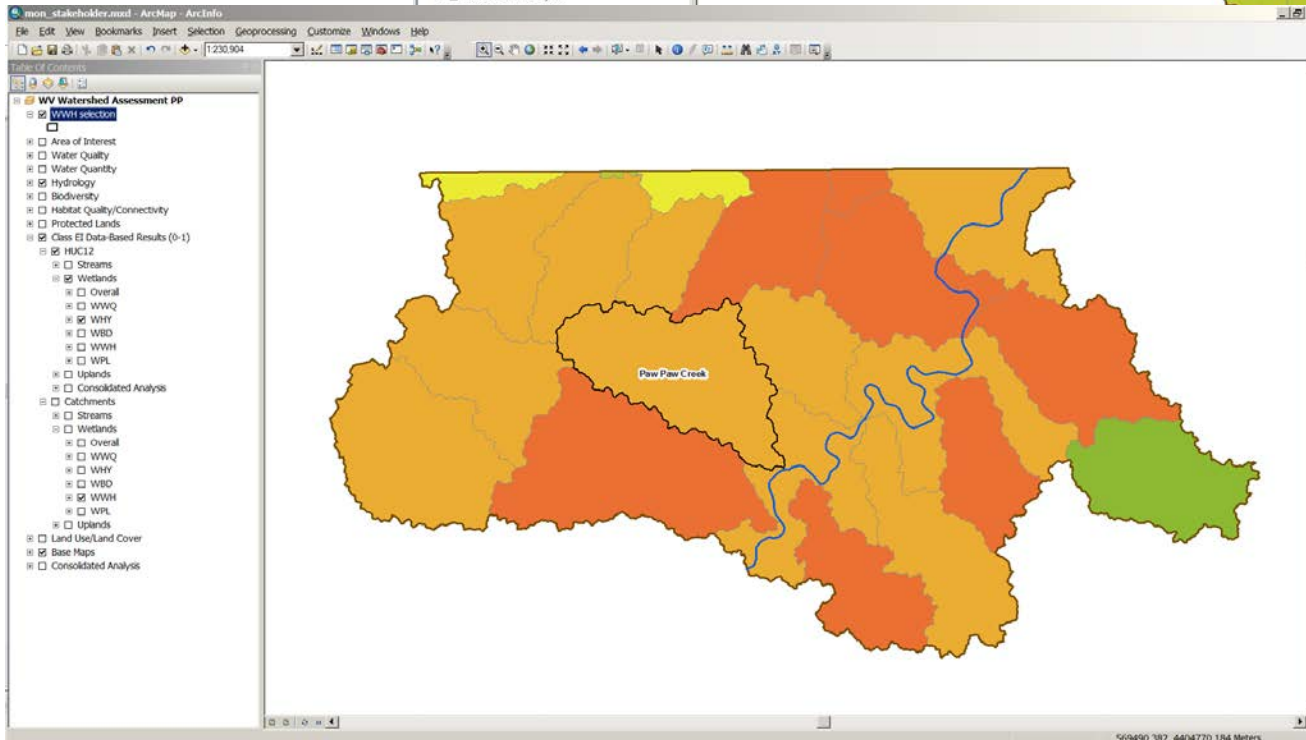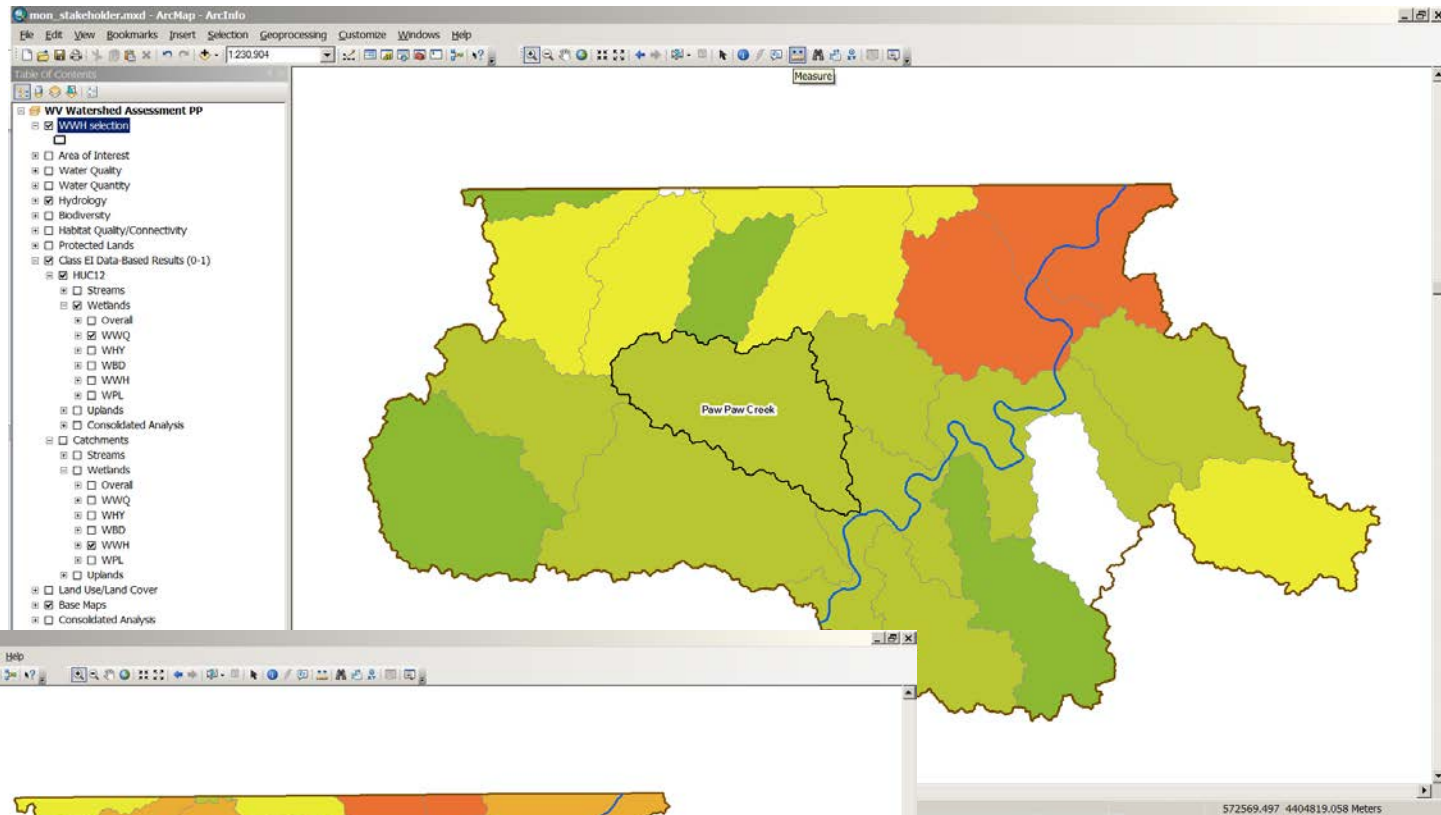
Wetlands
HUC12 Level
Hydrology
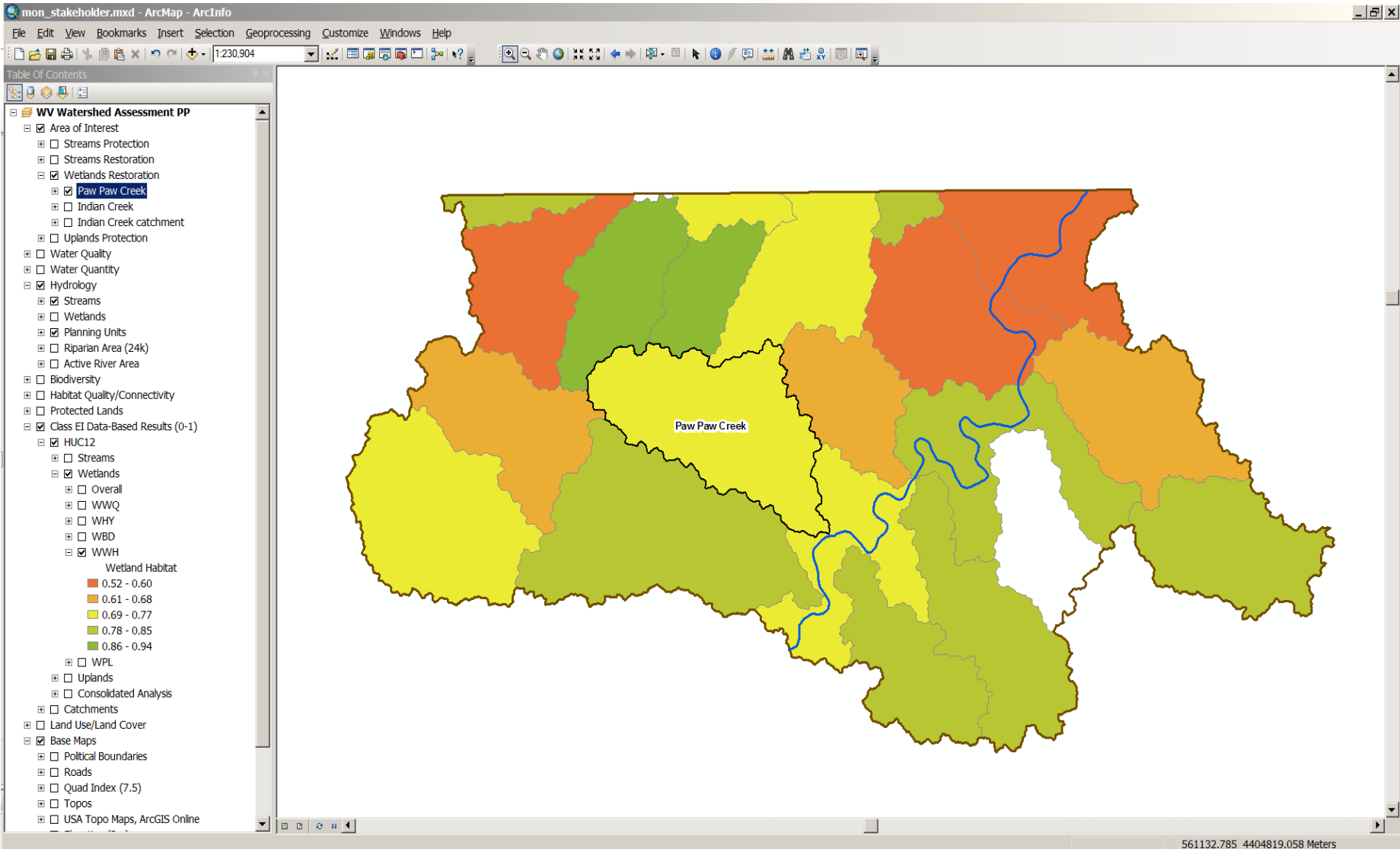
Wetlands - HUC12 Level
Wetland Habitat
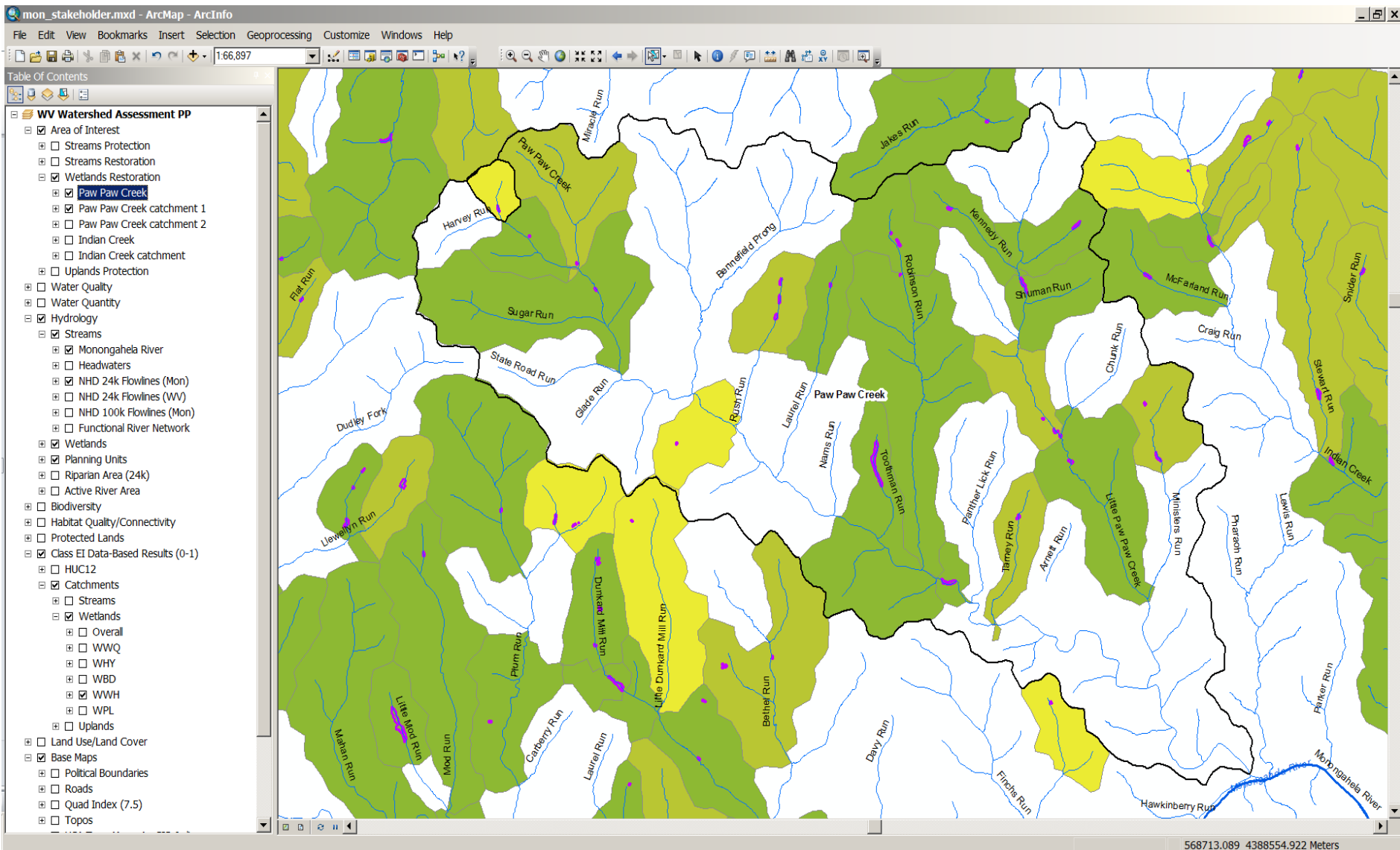
Wetlands - Catchment Level
Wetland Habitat Results
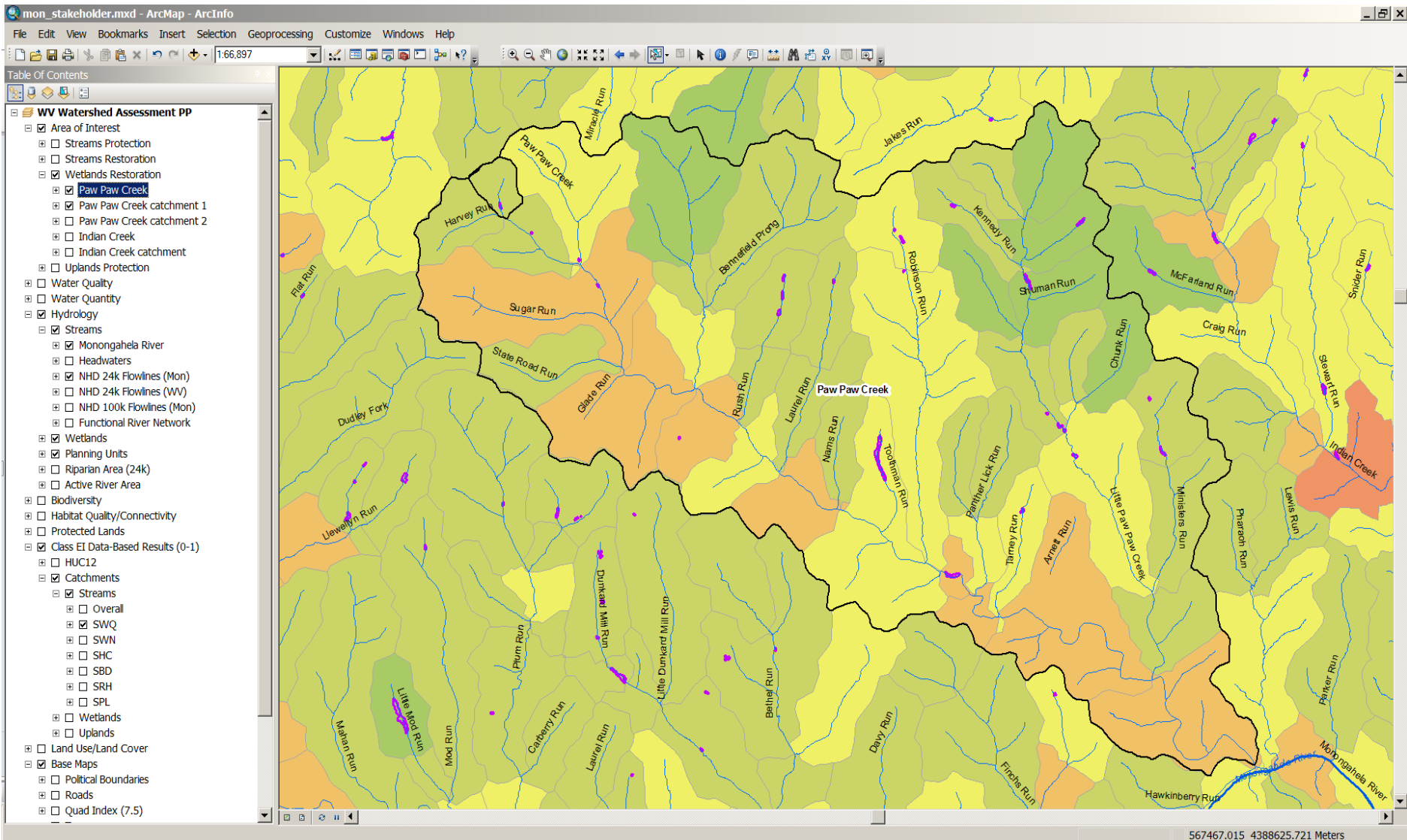
Streams - Catchment Level
Water Quality Results
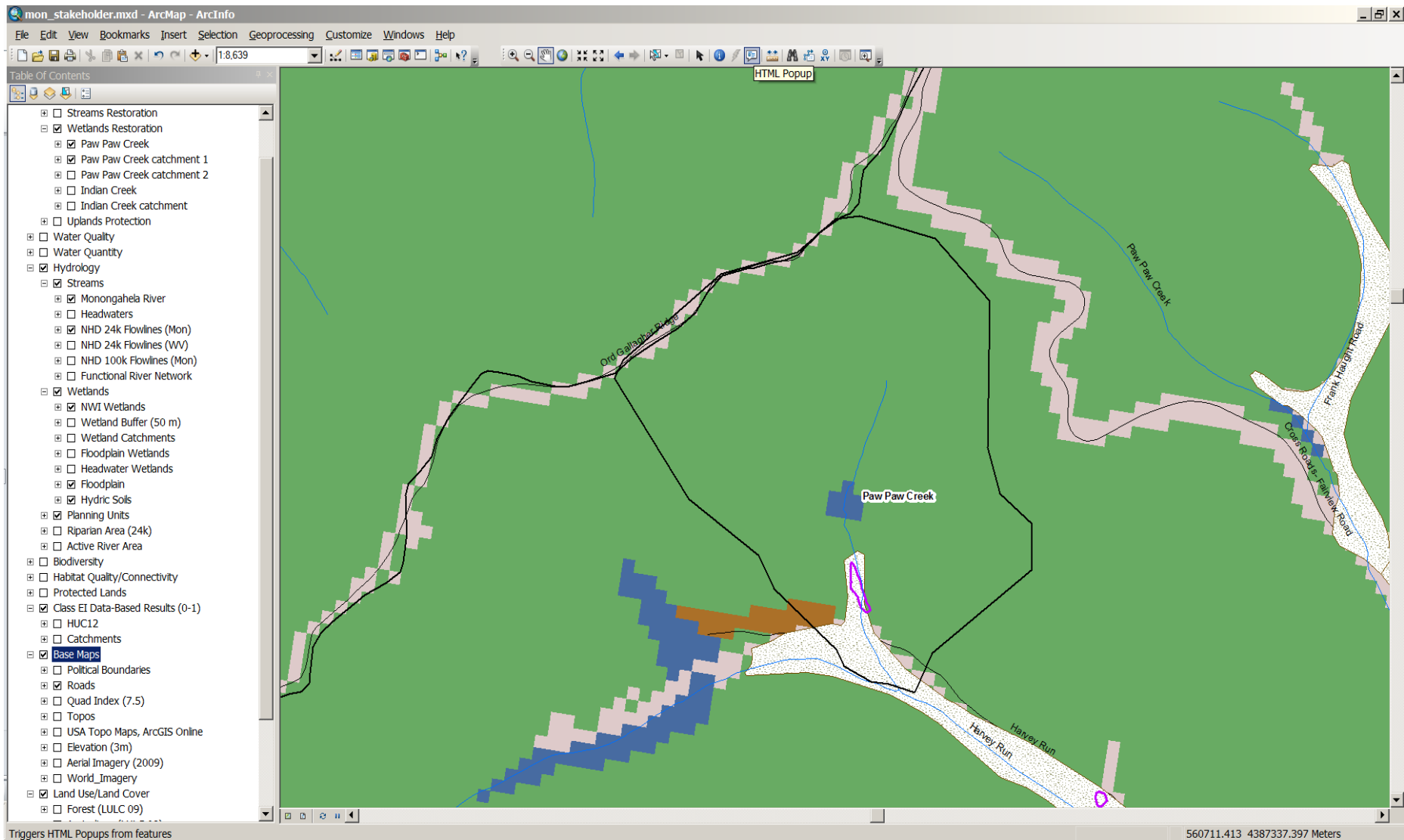
Wetlands Catchment Level – Roads, LULC, Hydric soils, (Floodplain)
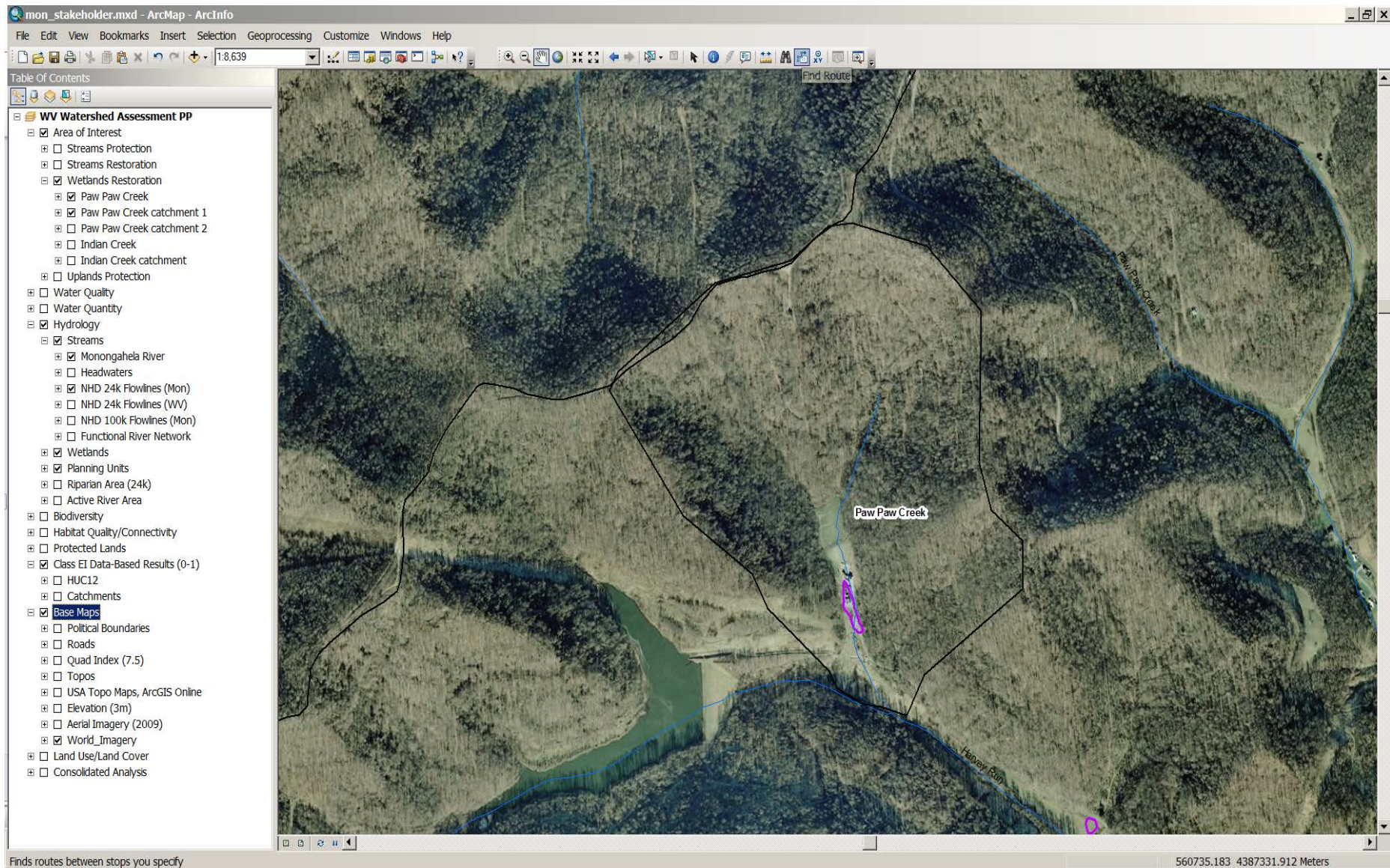
Wetlands Catchment Level – Aerial Imagery
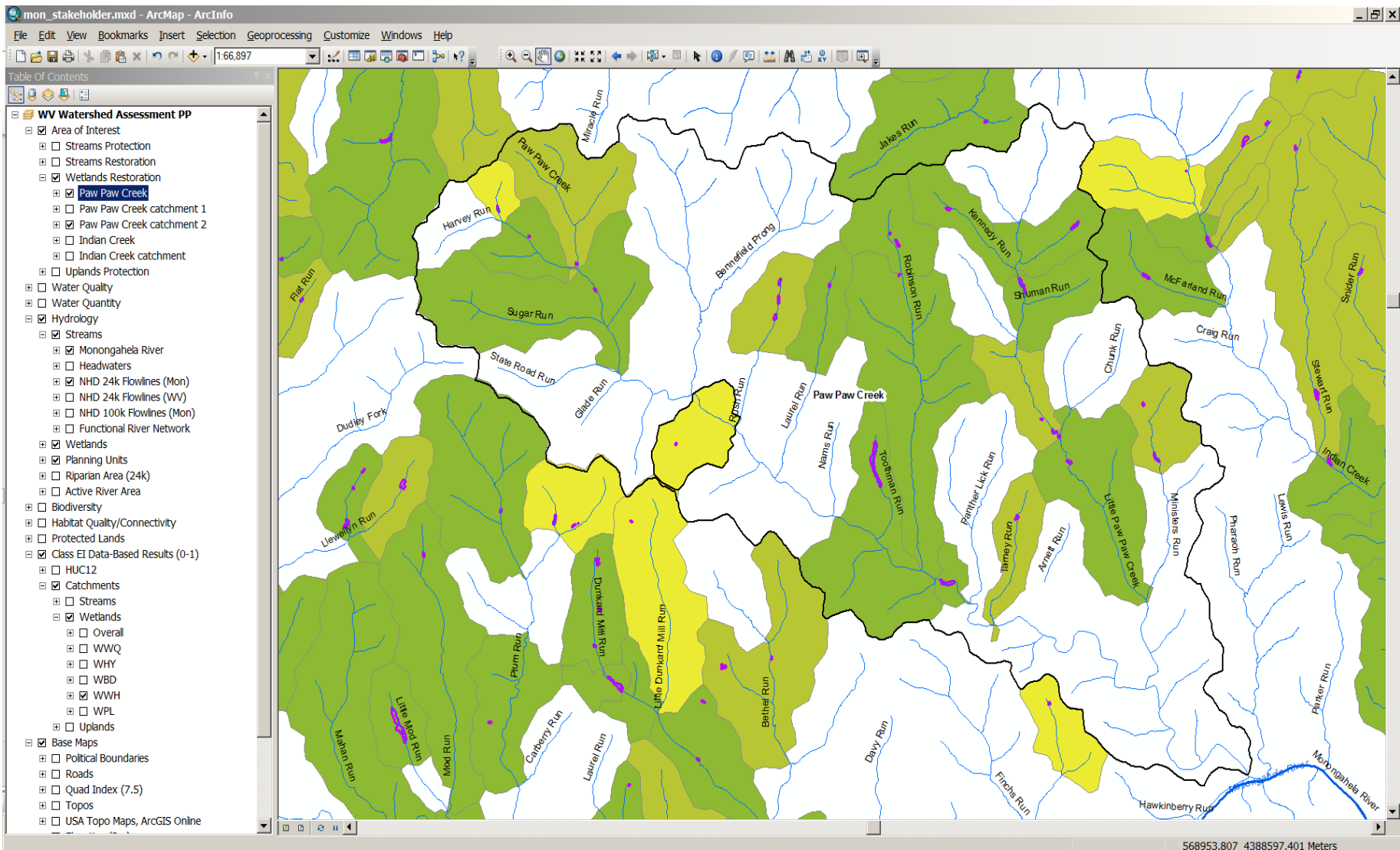
Wetlands - Catchment Level
Wetland Habitat Results
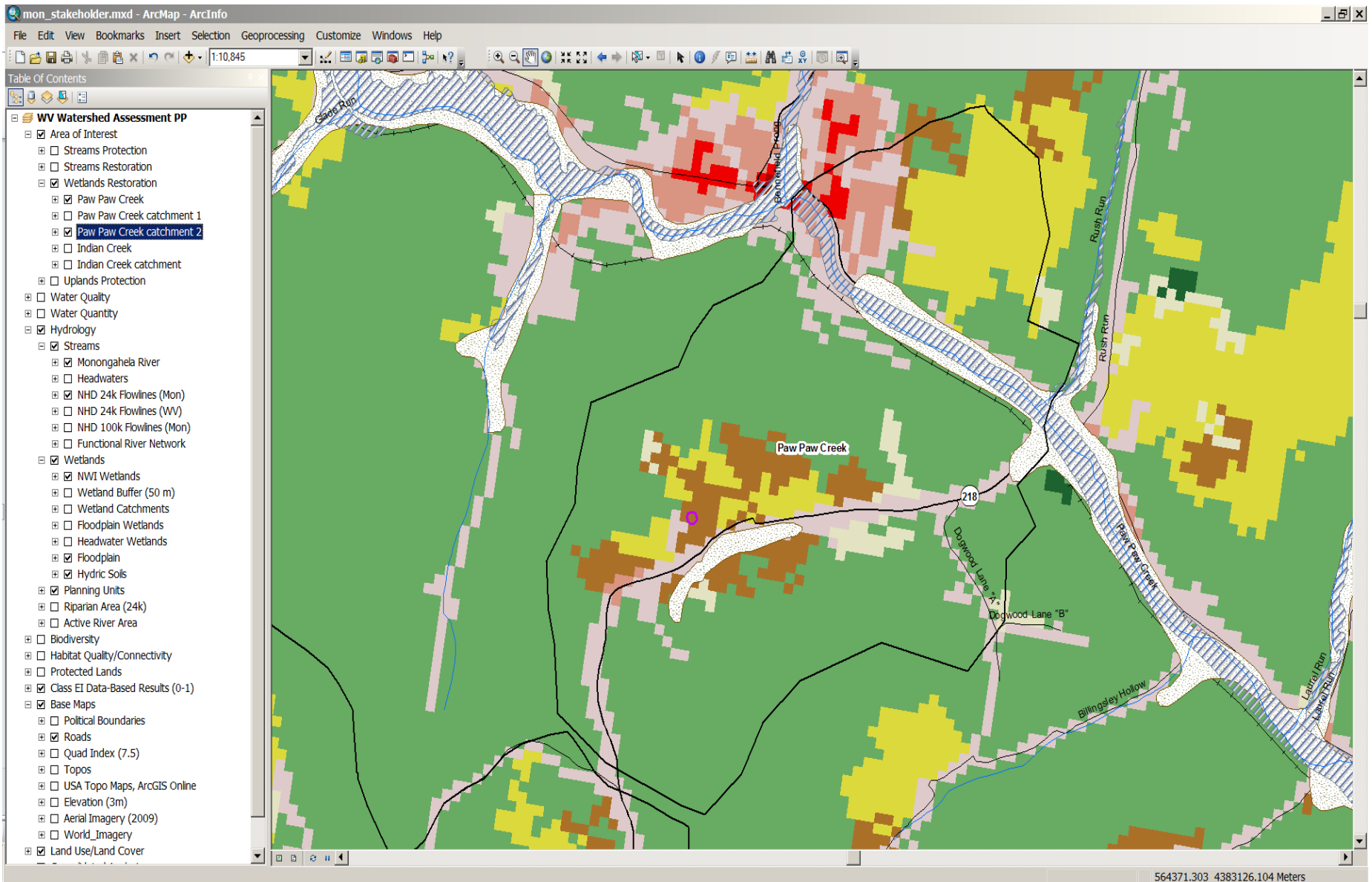
Wetlands Catchment Level – Roads, LULC, Hydric soils, Floodplain
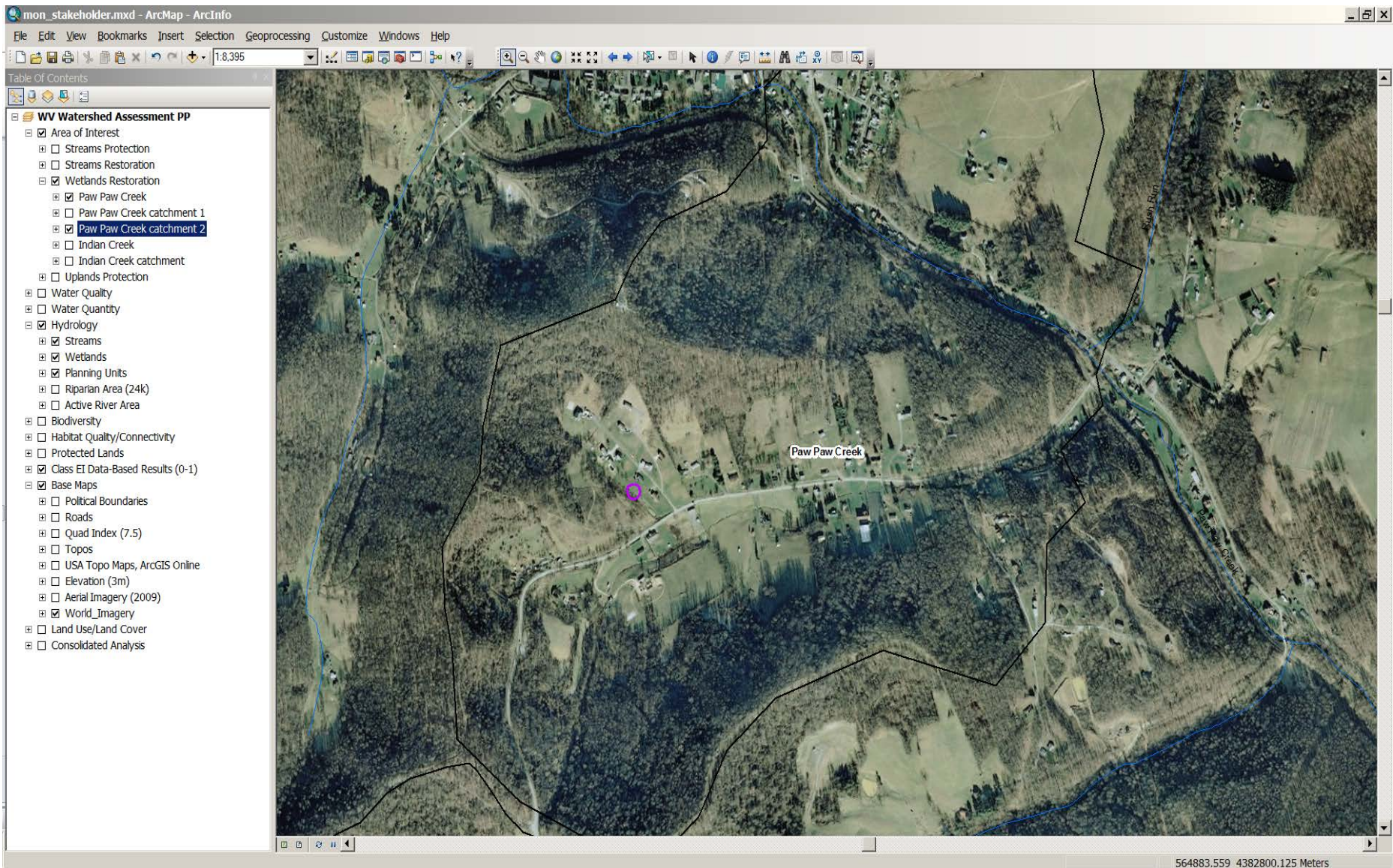
Wetlands Catchment Level – Aerial Imagery

Uplands Protection
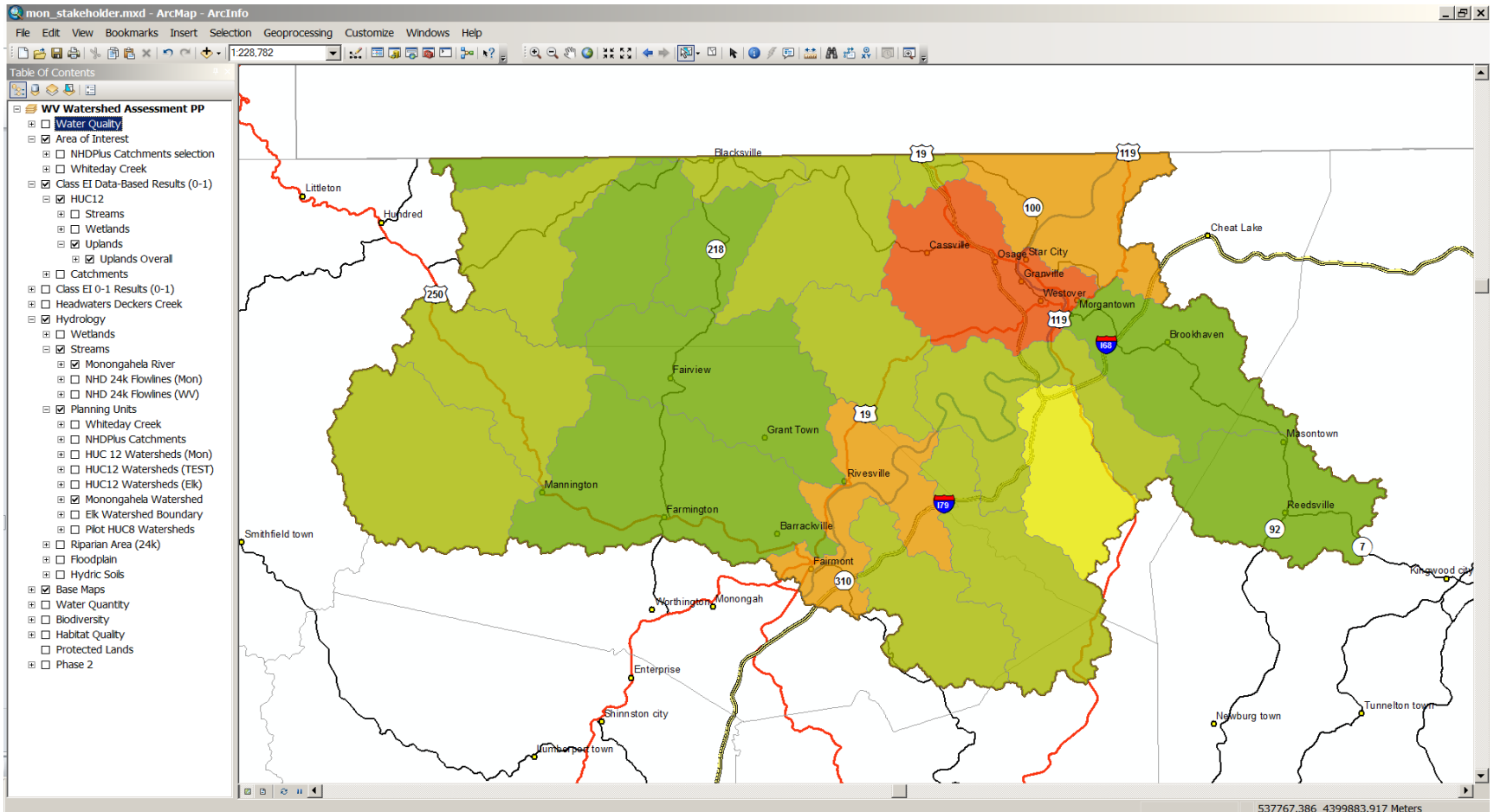
Monongahela – HUC12 Level
Uplands Overall Results*
(*All results presented are **preliminary** and currently used for illustrative purposes only)
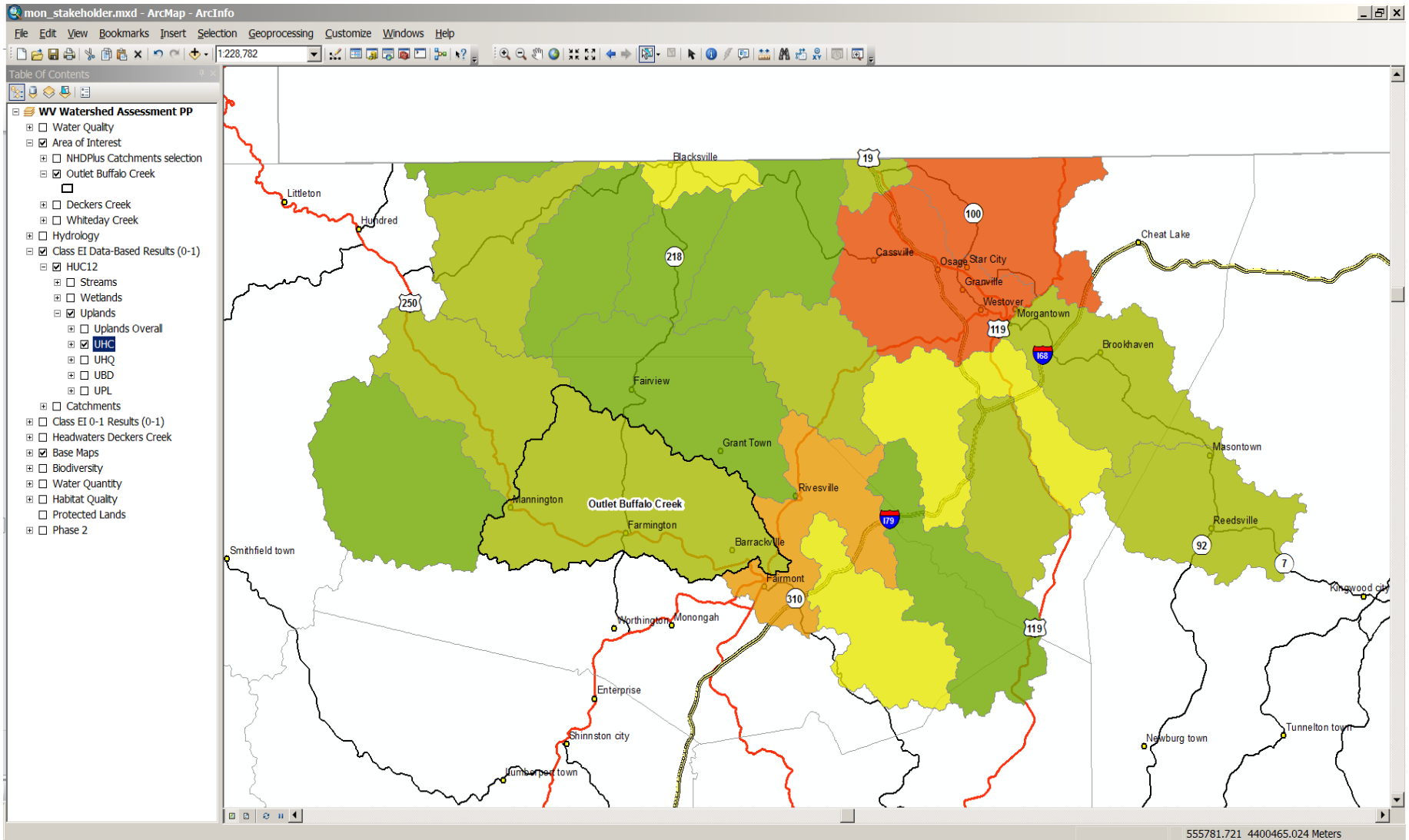
Monongahela – HUC12 Level
Uplands Habitat Connectivity Results
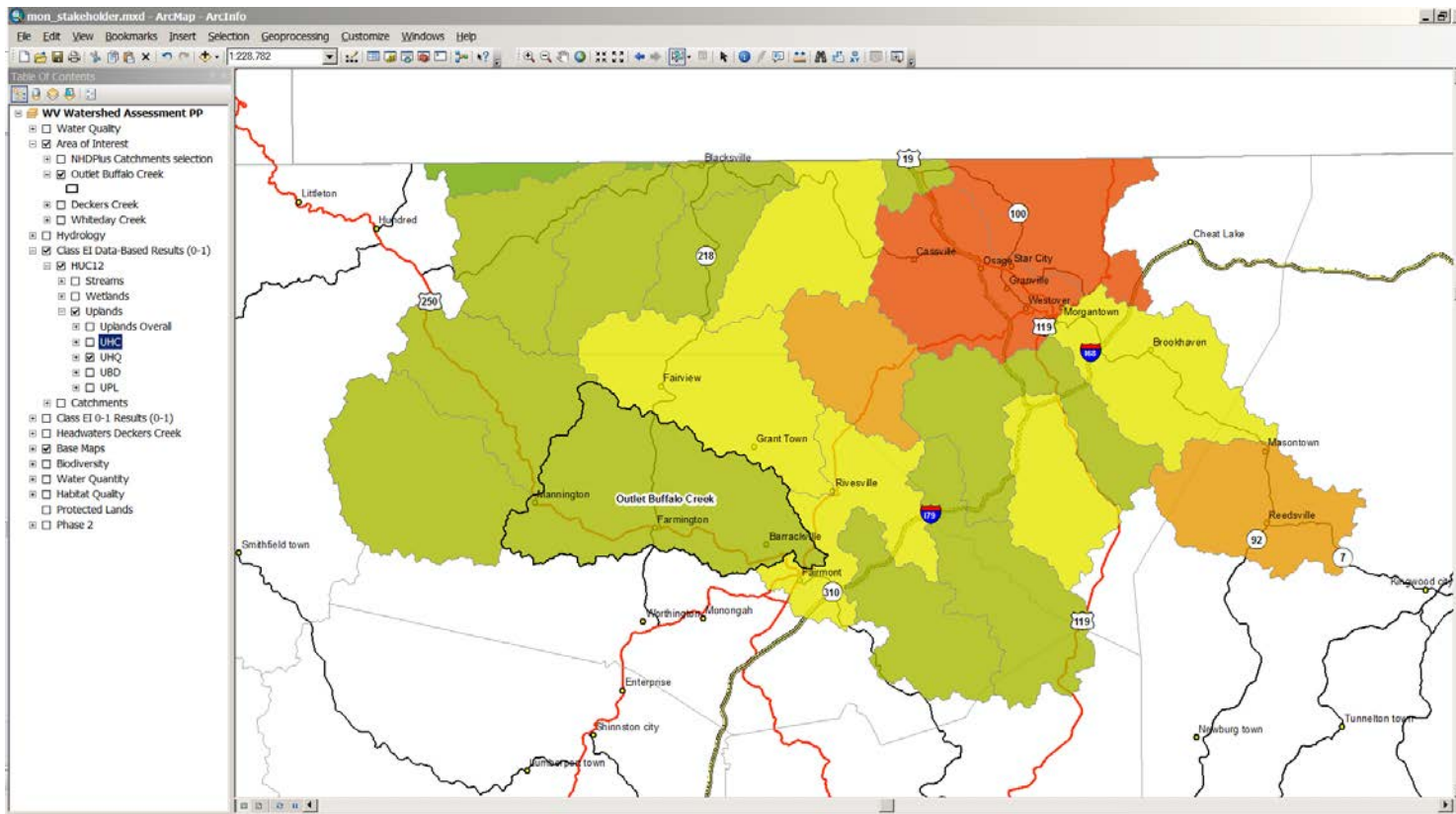
Uplands
HUC12 Level
Habitat Quality
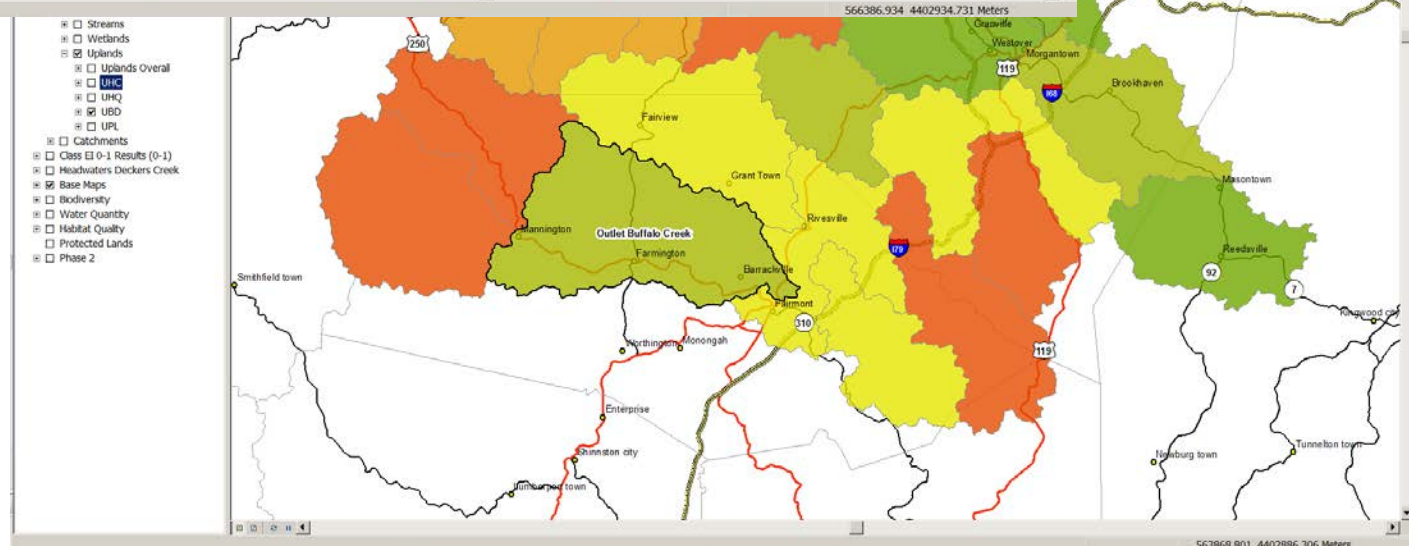
Uplands
HUC12 Level
Biodiversity
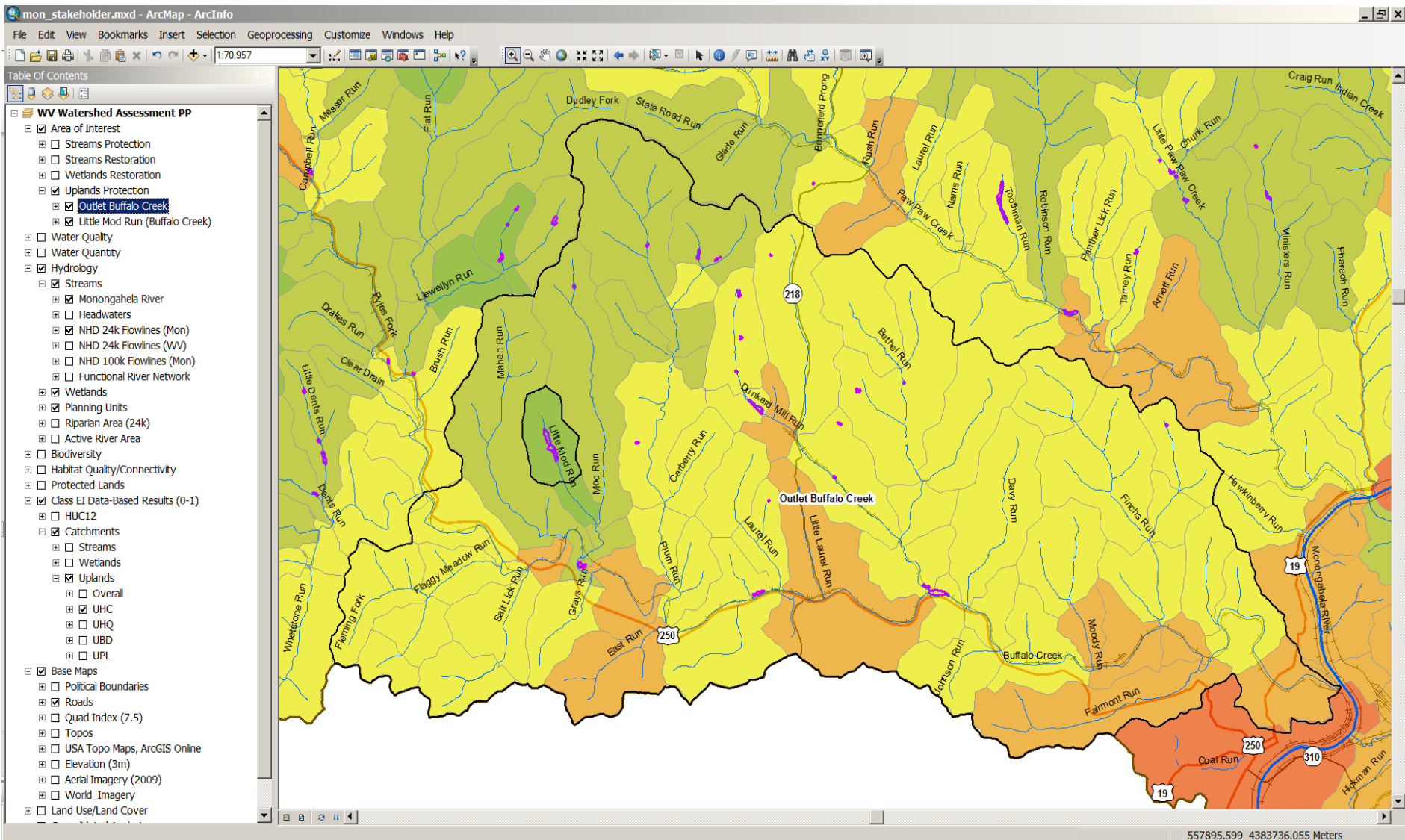
Outlet Buffalo Creek – Catchment Level
Habitat Connectivity Results
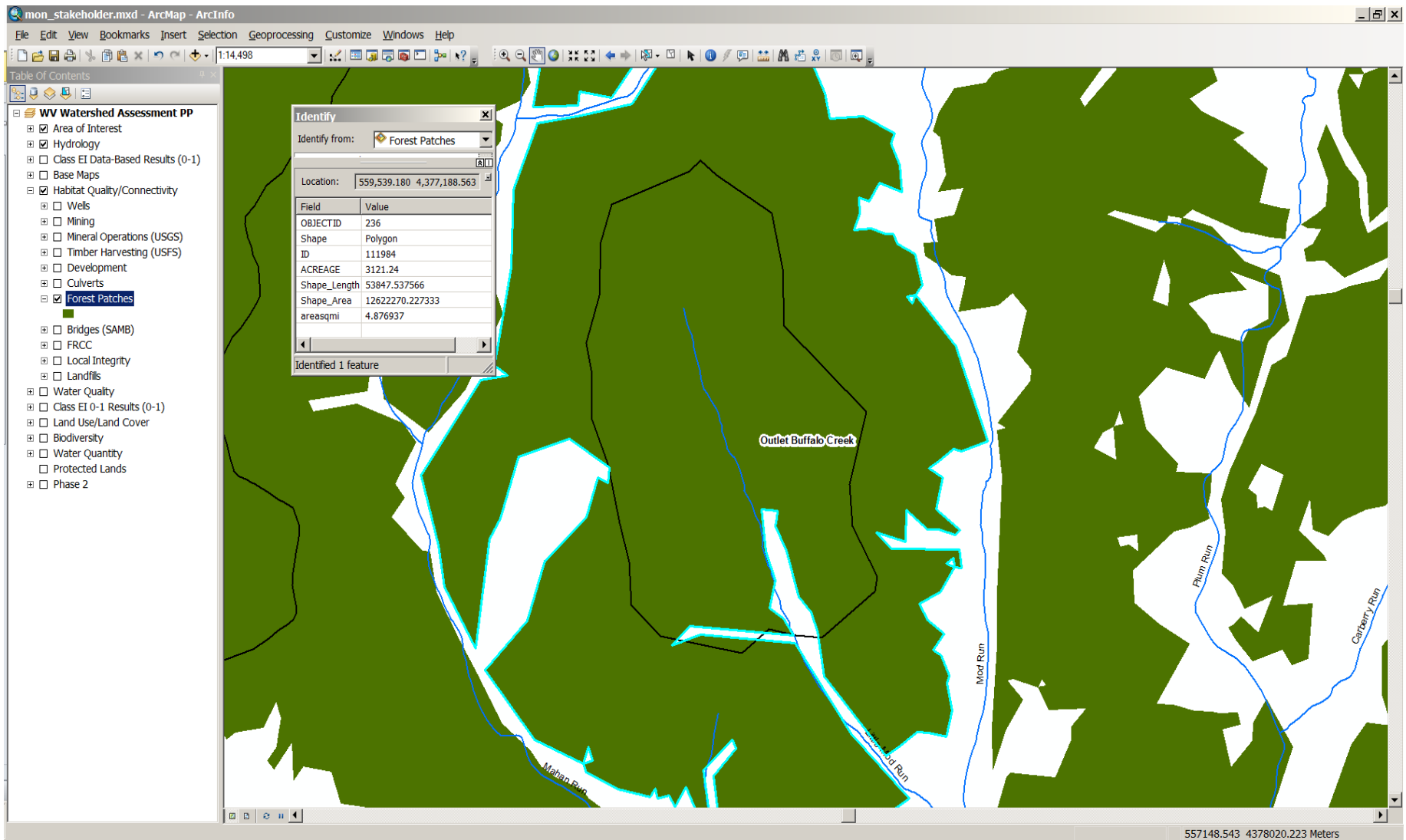
Uplands Habitat Connectivity Metrics dataset
(Forest Patches, with attribute information including area)
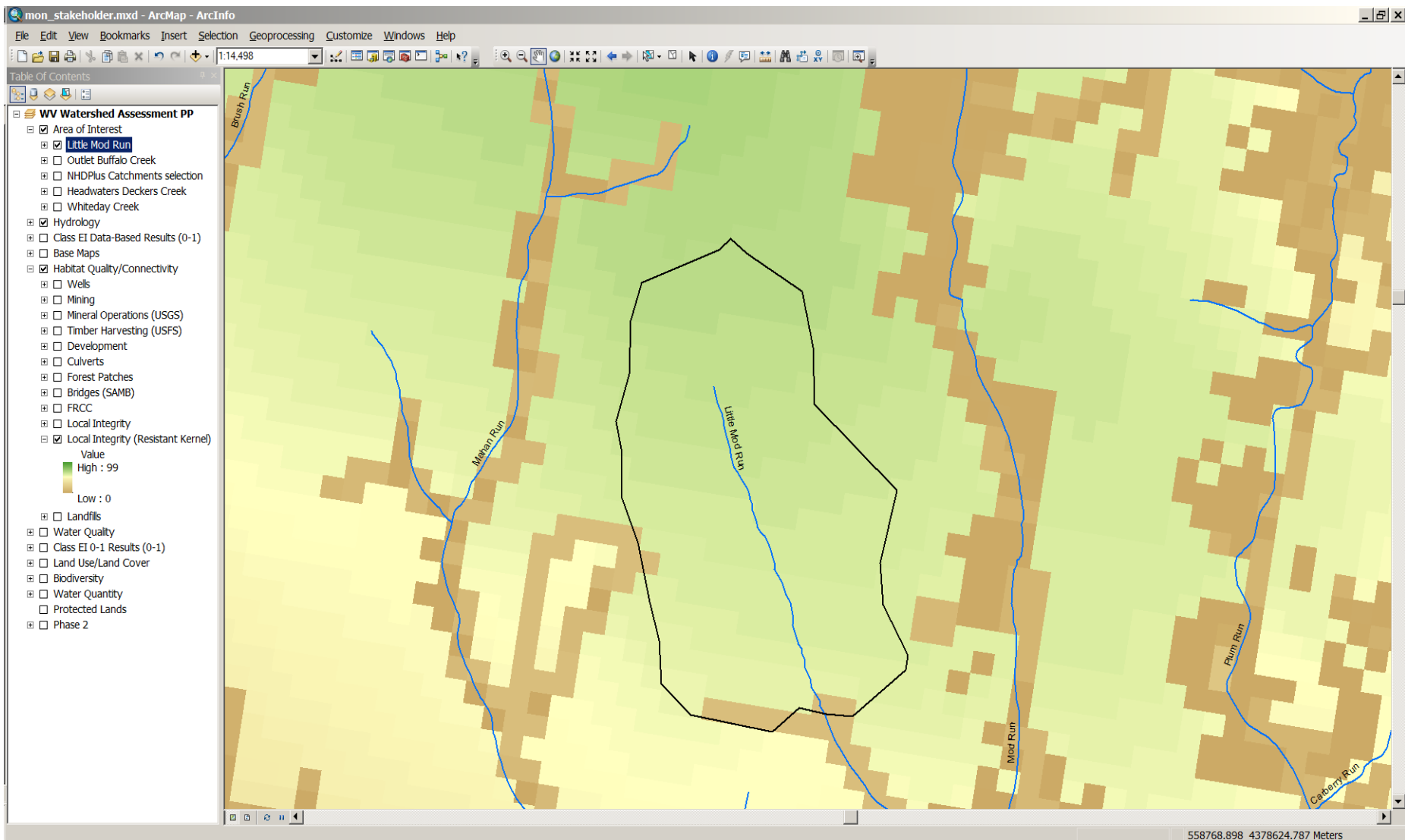
Uplands Habitat Connectivity Metrics dataset
(TNC Local Integrity)
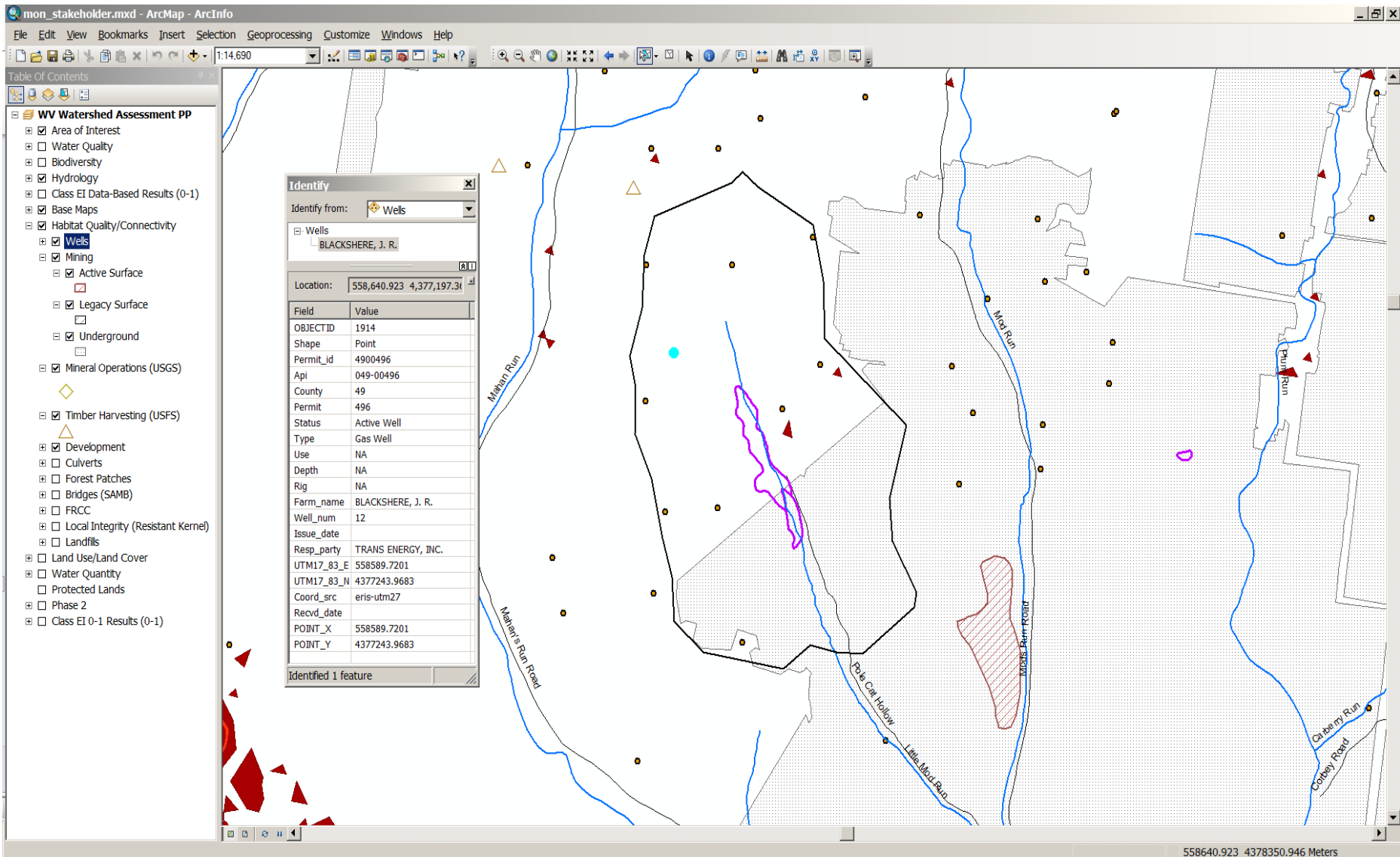
Uplands Habitat Connectivity Metrics datasets
(Mining, Wells w/ attribute information, Development, Roads/Rail
Mineral Operations, Timber Harvesting)

Mon wetland complex Reedsville, WV

COMMENTS/QUESTIONS?

Web Mapping Tool Examples

1. WV DEP Mining Data Explorer Tool
2. TNC Two Hearted Watershed Conservation Data Viewer

WV DEP Interactive Web Maps (GIS Server)

WV DEP Mining Data Tool

http://tagis.dep.wv.gov/mining/

Mining Layers – Permit Boundary; Underground mining

Mining Layers – Permit Boundary; Underground mining

Water sample data attribute info
with stream name, etc
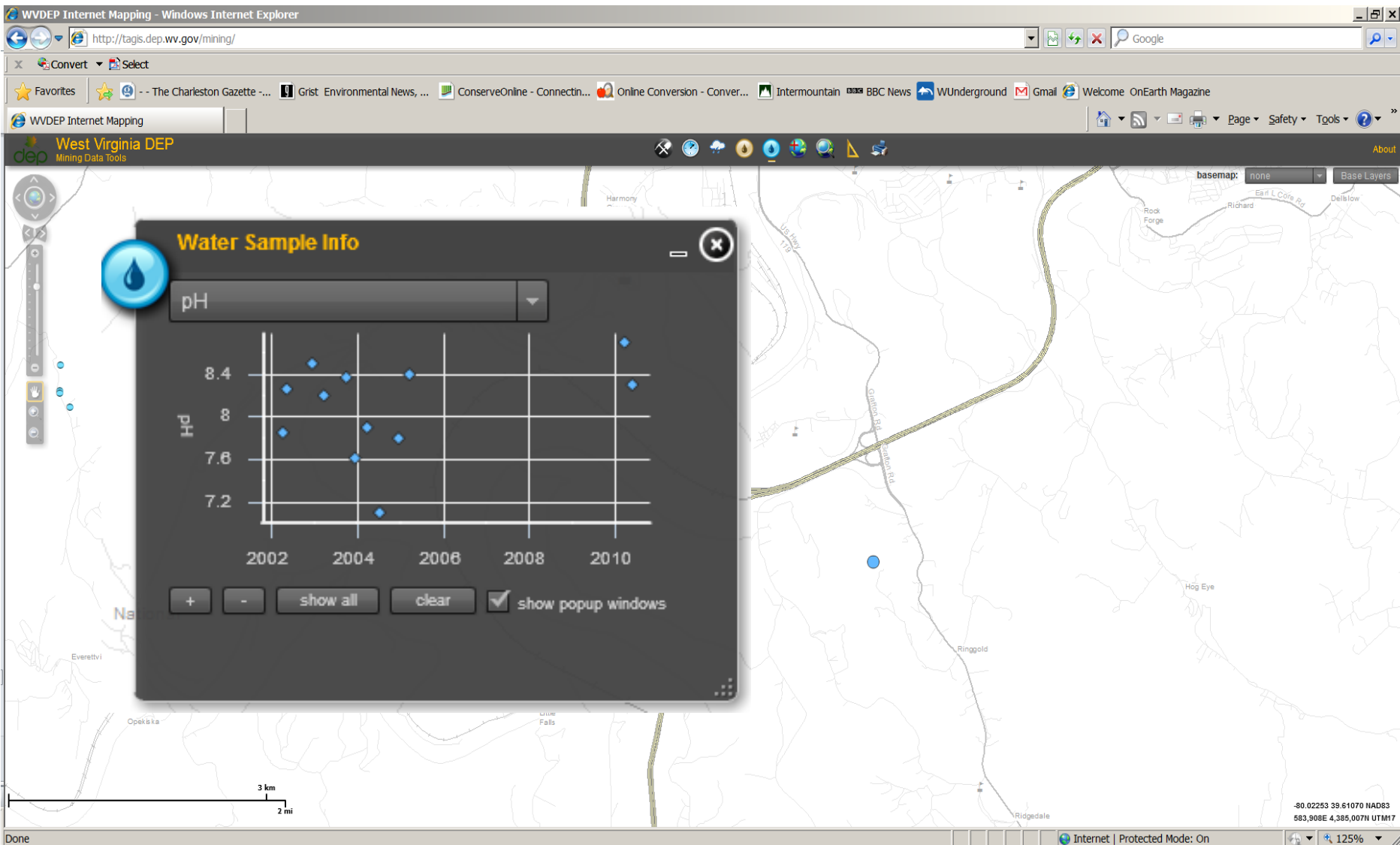
Water sample data graph, trend over time

Base layer – Hydrology (Streams, wetlands, watersheds)
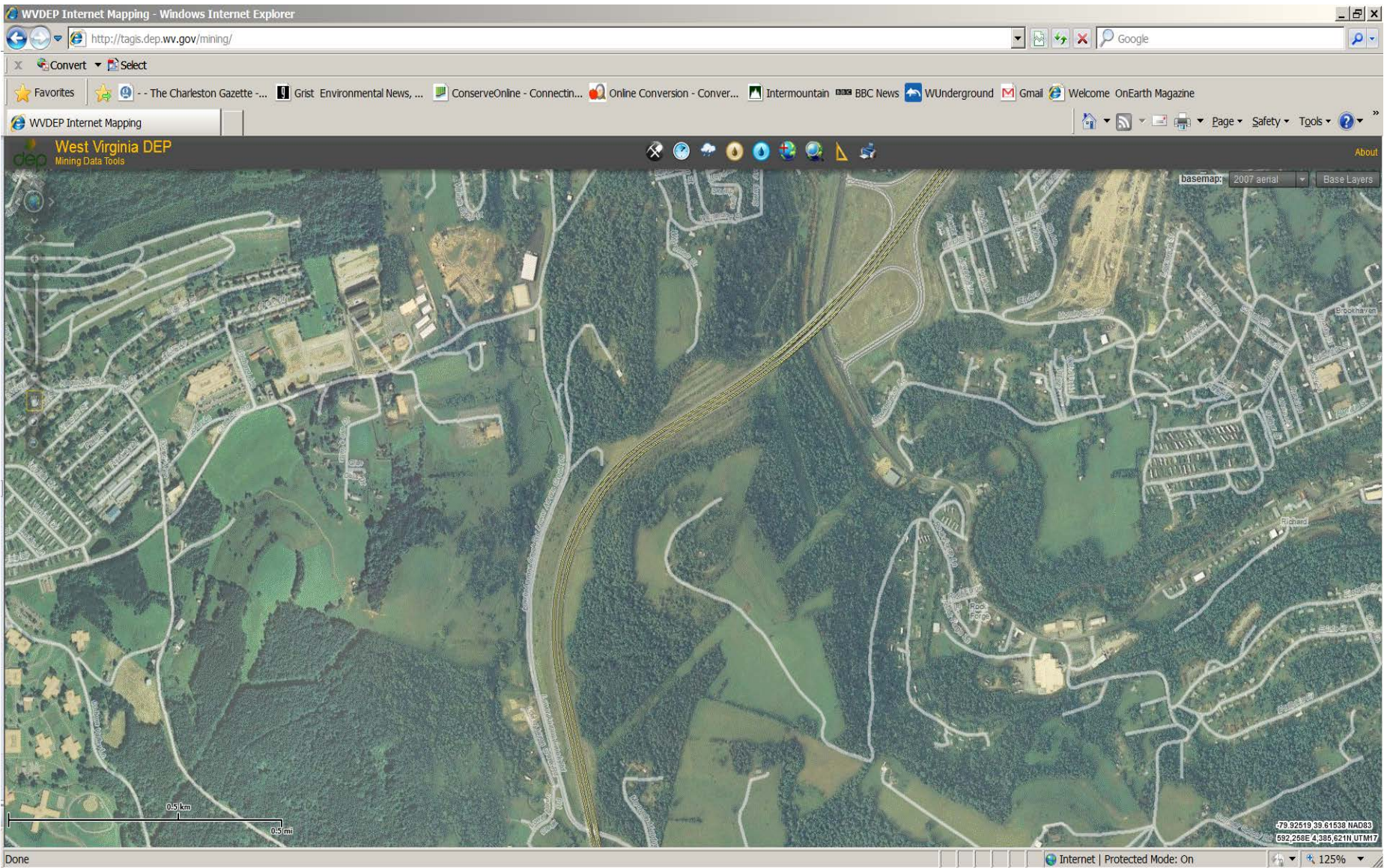
Base layer – Aerial imagery (2007)

TNC Interactive Conservation Maps

TNC Two Hearted River Watershed Conservation Map

http://maps.tnc.org/twoheartedwatershedconservation/
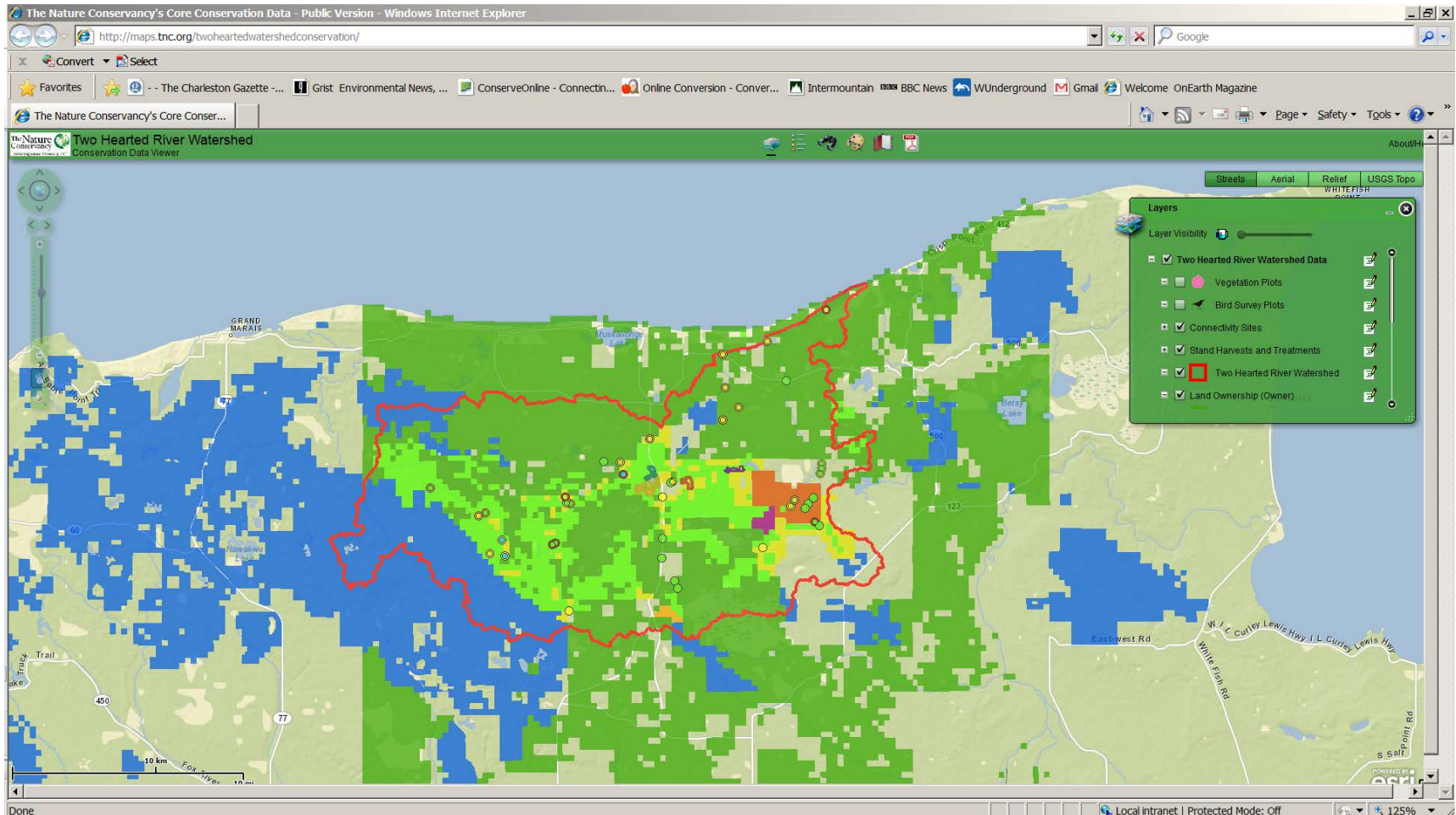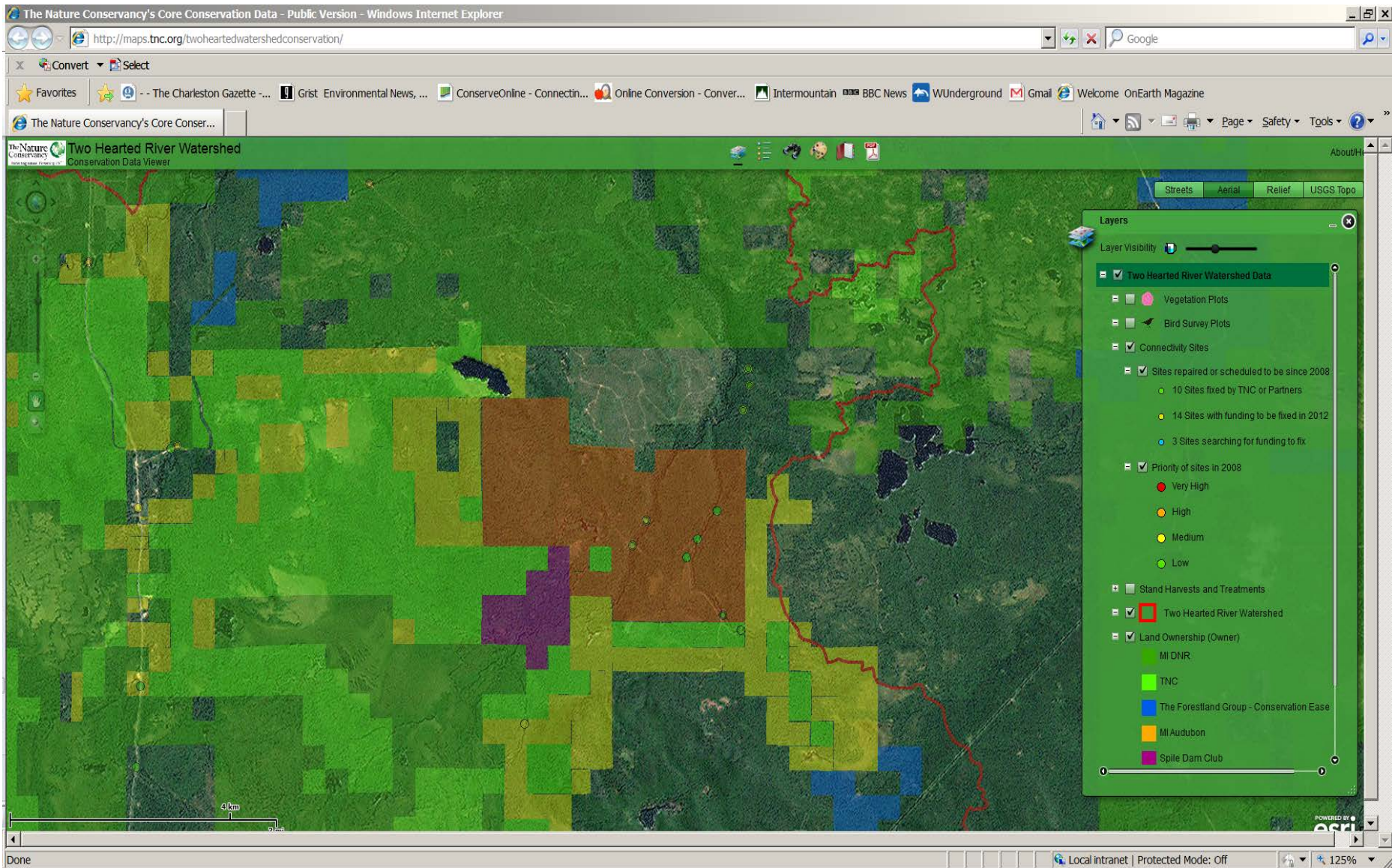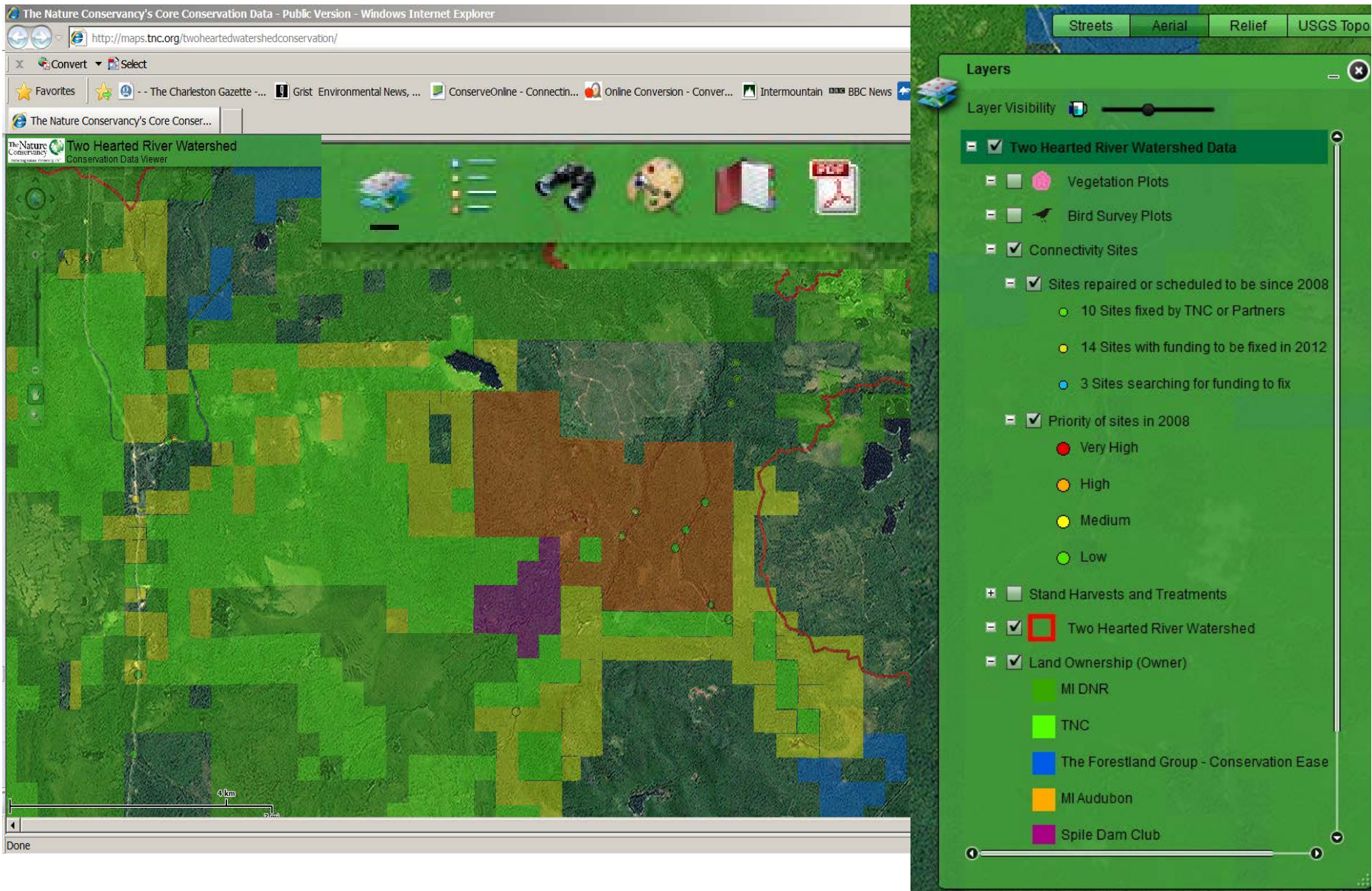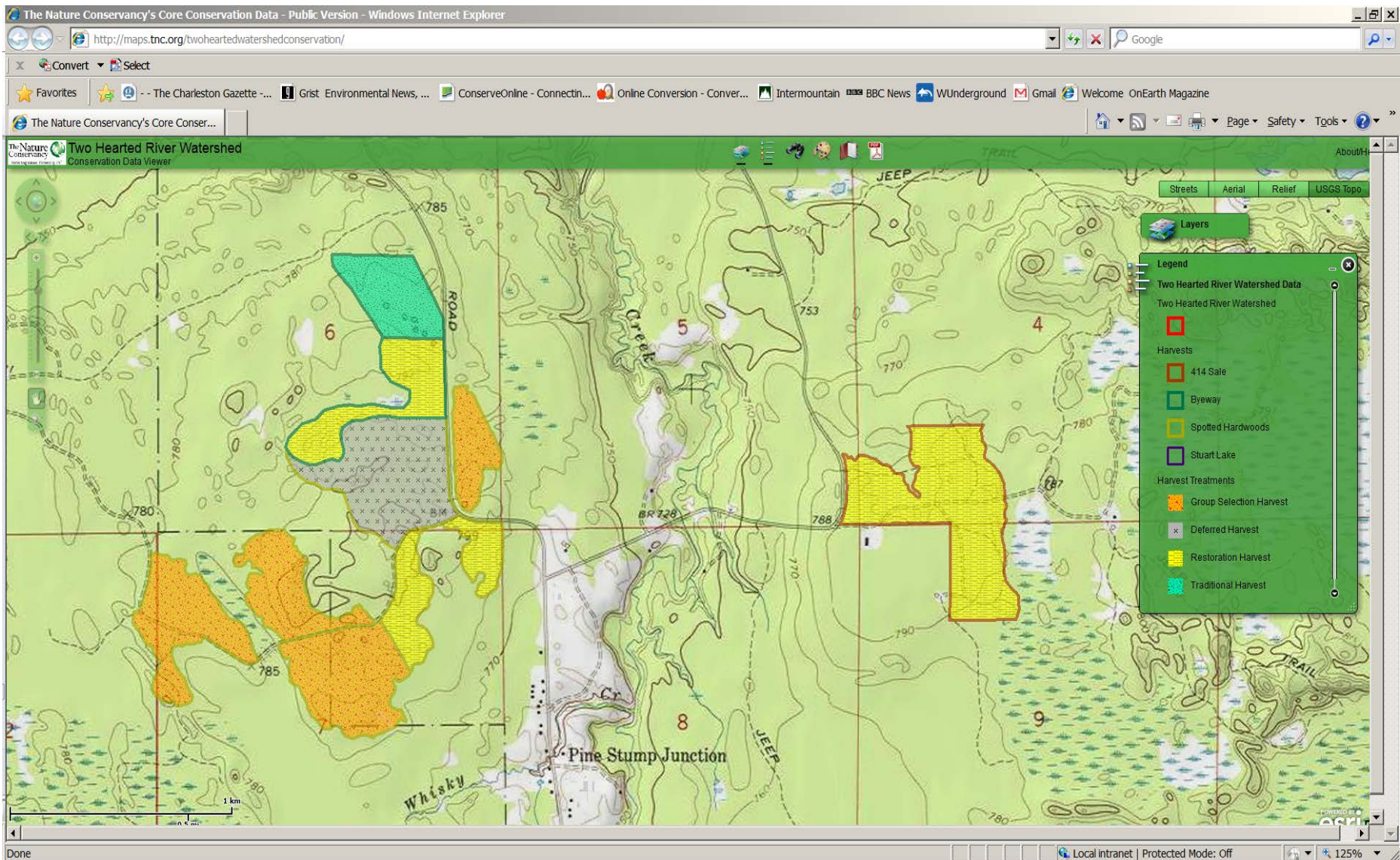
Aerial imagery base layer; expanded Layers contents w/symbology definition

Aerial imagery base layer; expanded Layers contents w/symbology definition

Topographic maps base layer; Legend box for Stand Harvests and Treatment data

Relief map base layer; Search box with Connectivity Sites displayed

Questions to Consider

- What do you envision your primary uses of the tool may be?

- What functionality is desired for you to get the most from the tool? (e.g. view data, ability to search, get attribute information, etc)

- What would be the most important feature of the tool for you? The least important?

Mon River at Friendship Hill ©photos.igougo.com

COMMENTS/QUESTIONS?