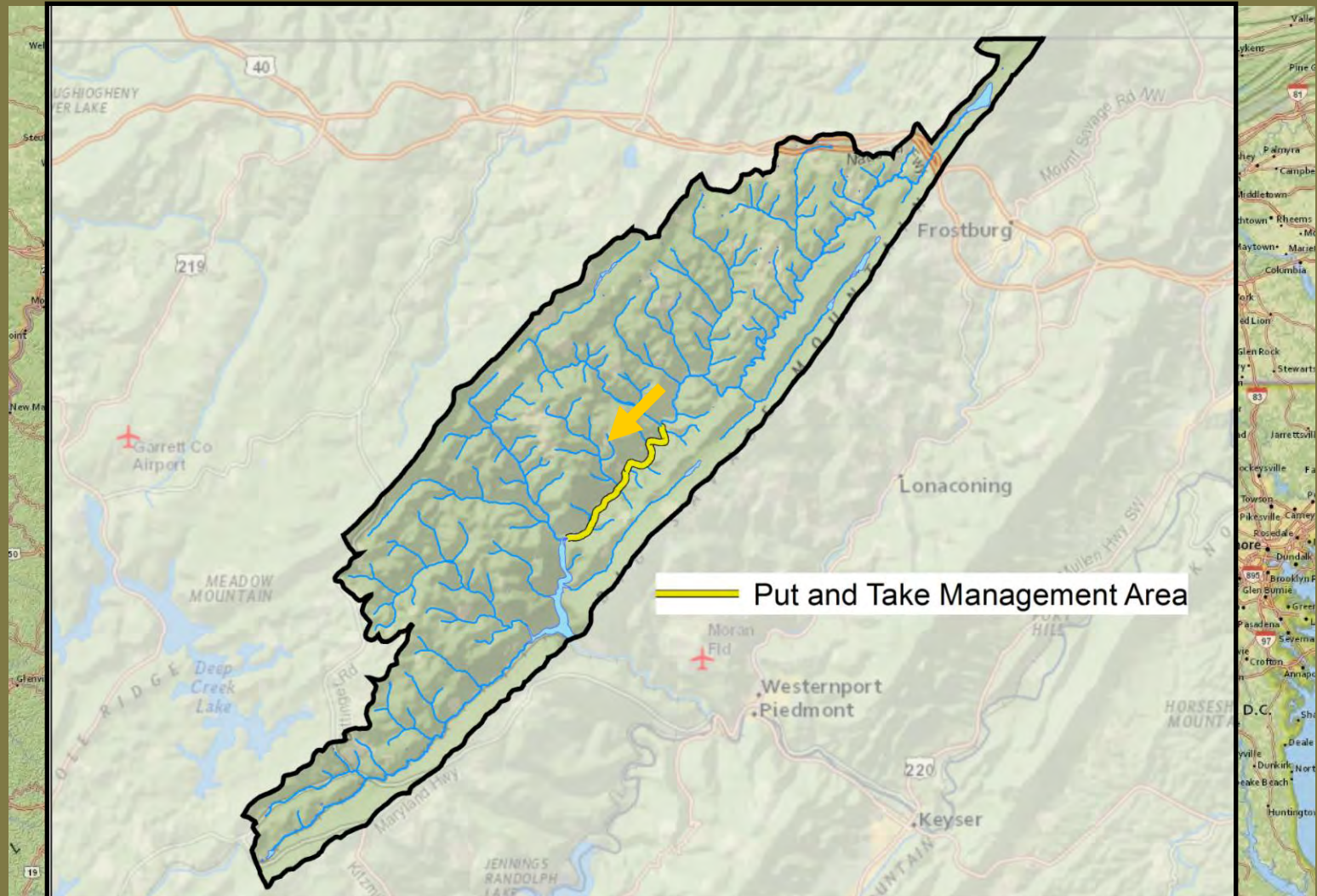


# Short-Term and Seasonal Movements of Brook Trout in the Upper Savage River Watershed Garrett County, Maryland

Matthew Sell, Maryland DNR Fisheries Service



# Where In The World Are We?





# What We Knew... And What We Didn't



## We Didn't Know...



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# What We Did

- Tagged 16 large ( $\geq 240$  mm, TL) Brook Trout with an internal radio tag
- Located tagged Brook Trout at regular intervals over life of tags ( $\sim 1$  year)
- Recorded GPS coordinates and general habitat conditions at each Brook Trout location





# What We Did

- Collected temperature and flow data from USGS gauging station.
- Deployed temperature loggers in each major tributary to the upper Savage River

USGS 01596500 SAVAGE RIVER  
PROVISIONAL D



**LOCATION**-- Lat 39°34'11"N, Long 77°51'11"W  
on right bank 0.9 mi upstream from Bear Pen Run, 1.5 mi downstream from Poplar Lick Run,  
5.4 mi northwest of Barton, and 10 mi upstream from mouth.

**DRAINAGE AREA**--49.1 mi<sup>2</sup>

**PERIOD OF RECORD**--September 1948 to current year.

**GAGE**--Water-stage recorder and crest-stage gage. Datum of gage is 1,603.44 ft above North  
American Vertical Datum of 1988.

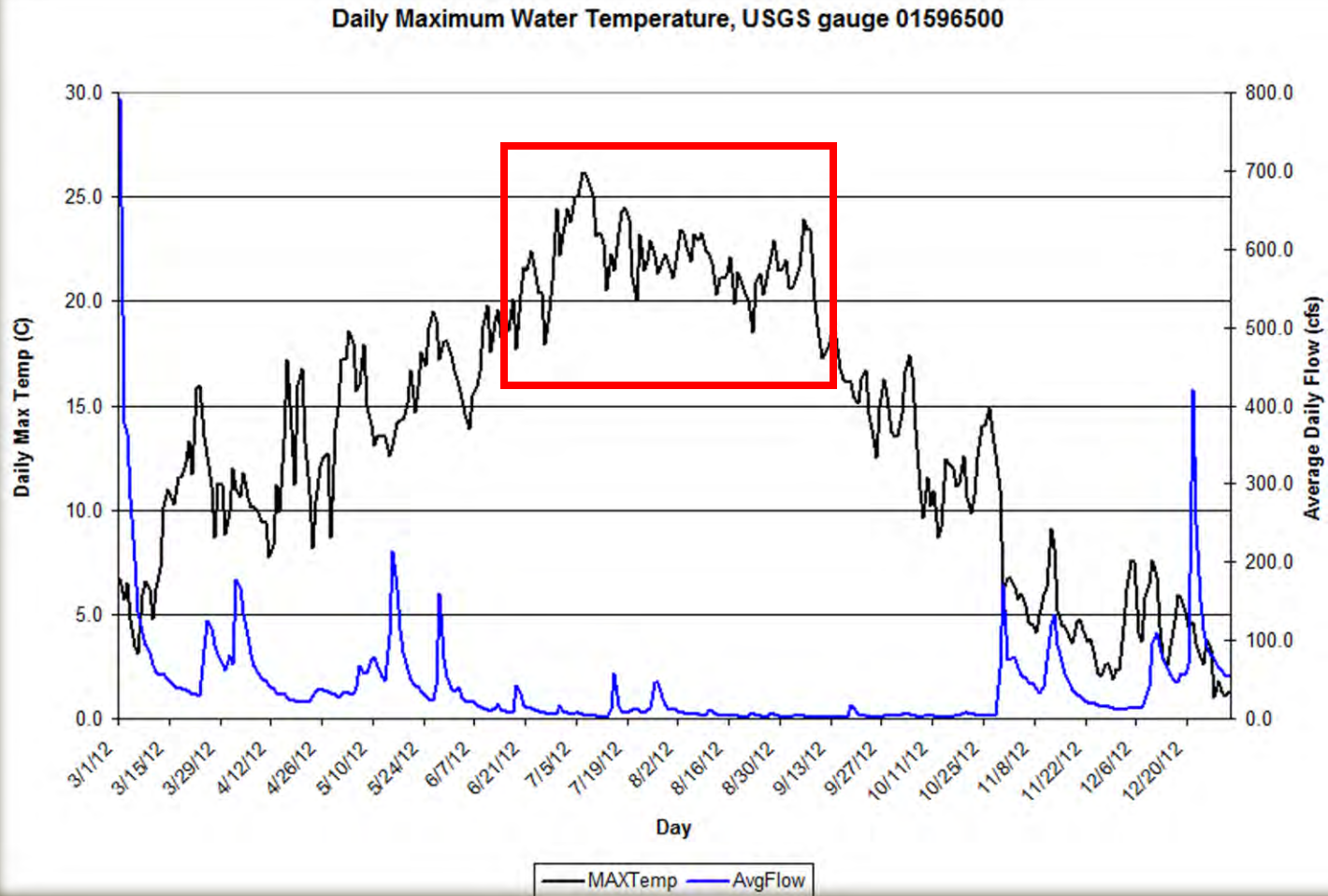
**REMARKS**--U.S. Geological Survey satellite data-collection platform at station.

**EXTREMES FOR PERIOD OF RECORD**--Maximum discharge, 7,510 ft<sup>3</sup>/s, October 15, 1954,  
gage height, 8.45 ft; minimum discharge, 0.4 ft<sup>3</sup>/s, September 3, 4, 1966.

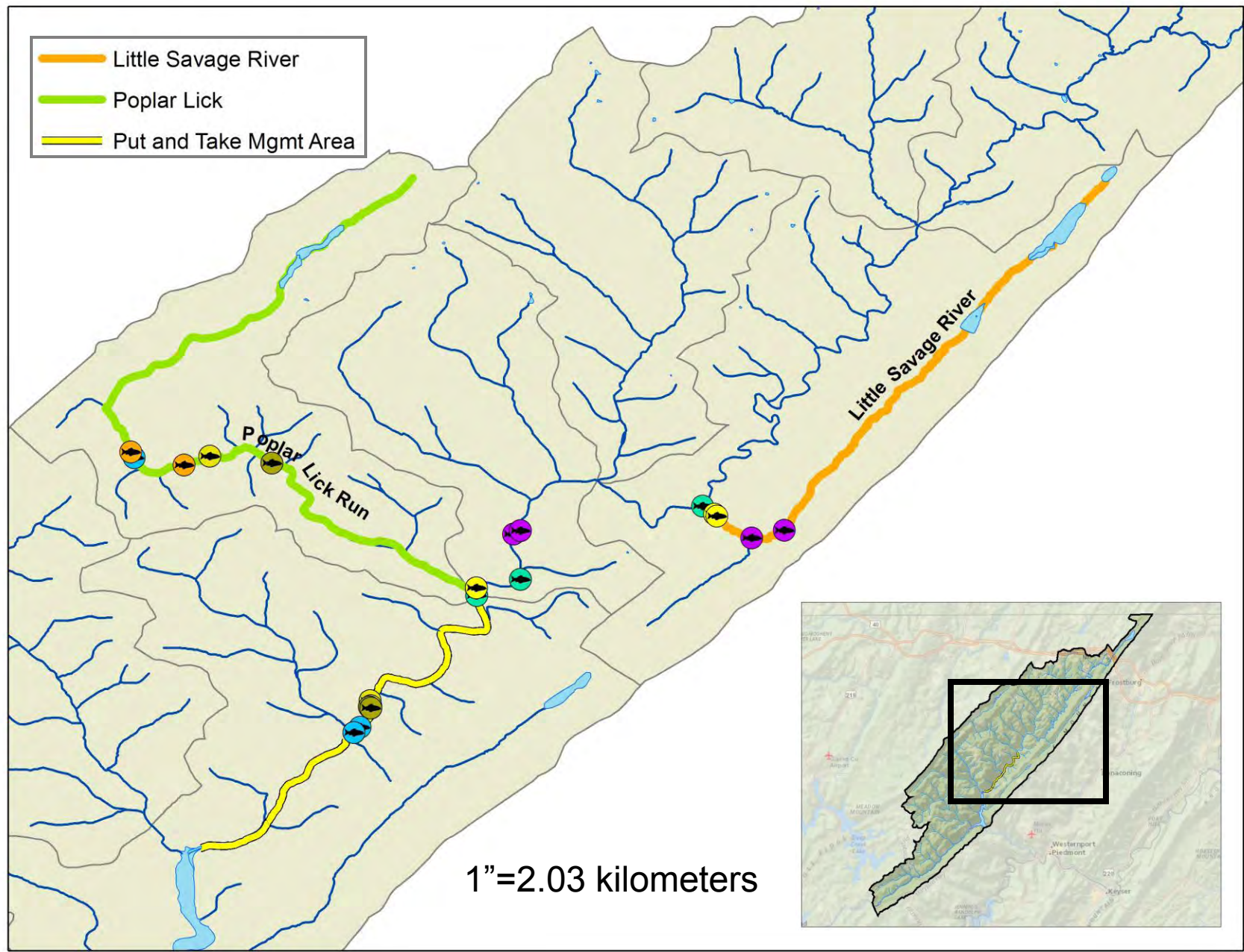
**COOPERATION**--Funding for the operation of this station is provided by the Maryland Department of  
Natural Resources, and the U.S. Geological Survey.



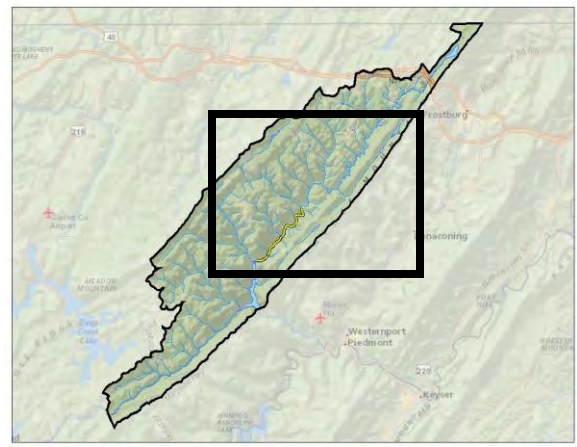
# What We Found...



- Little Savage River
- Poplar Lick
- Put and Take Mgmt Area

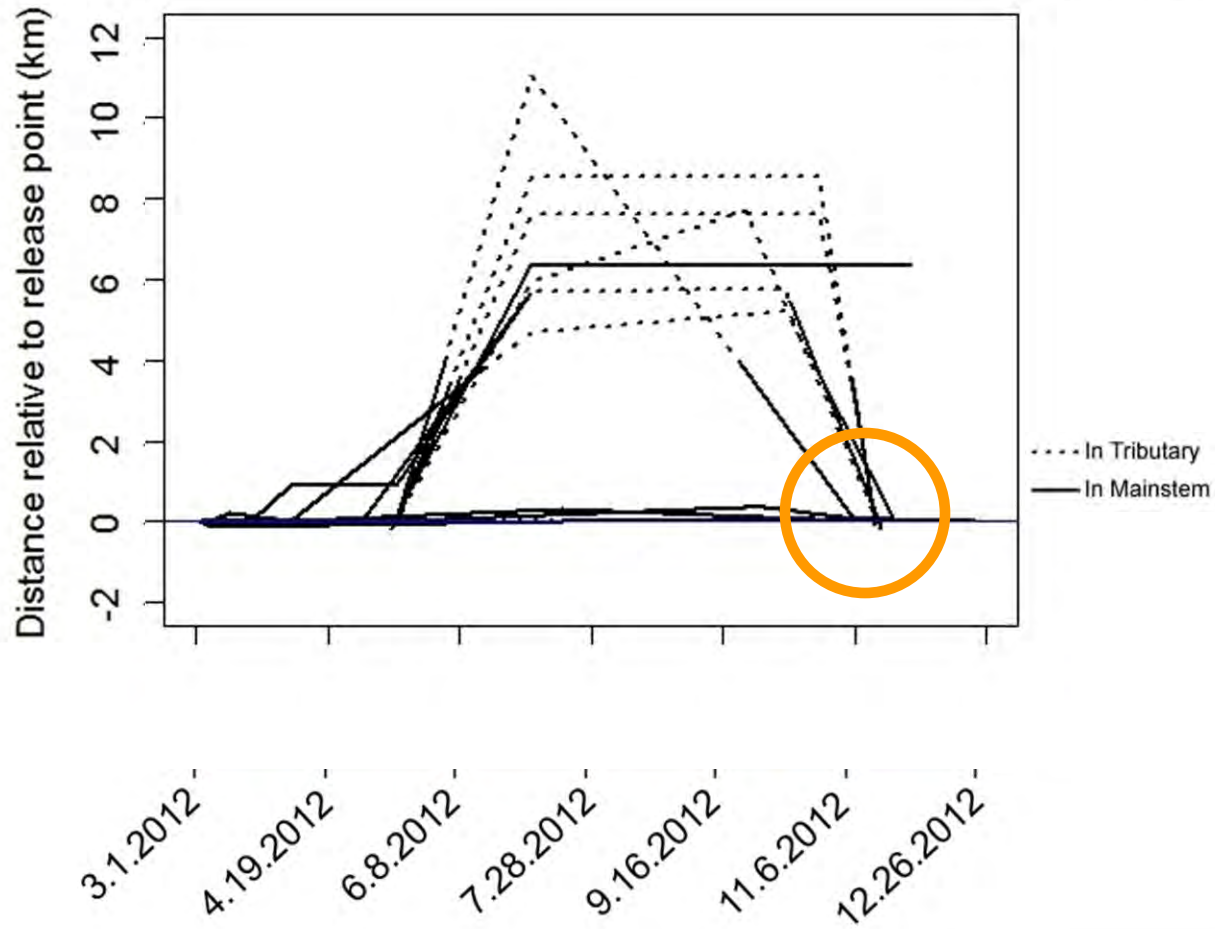


1"=2.03 kilometers

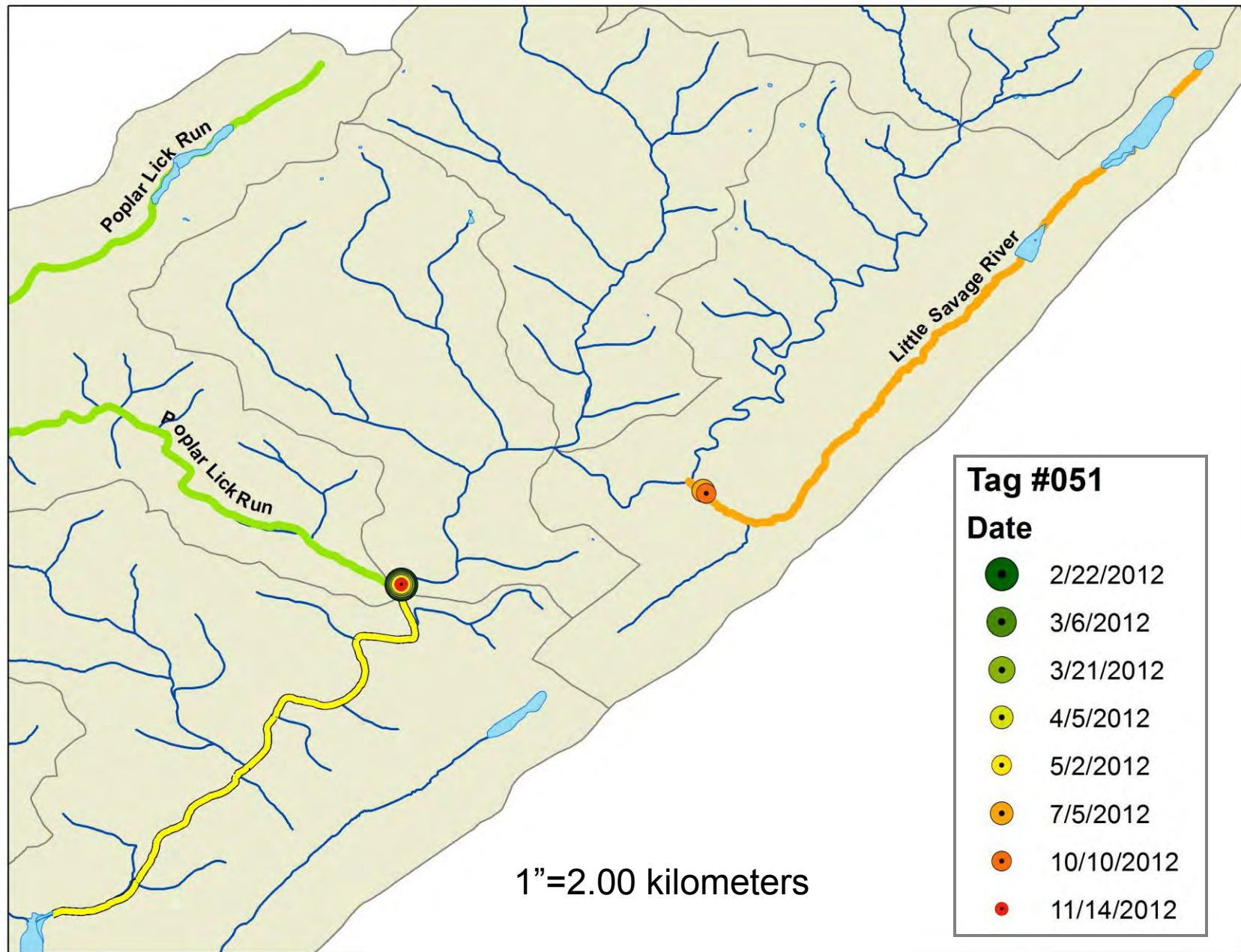




# What We Found...







# Summary



- Brook Trout in the upper Savage River move freely between protected and non-protected areas
- Movements seem to be linked to increased water temperatures and the cooler tributary streams act as thermal refugia
- Tributaries and upper main stem are not only a thermal refuge, but are also important spawning areas
- There is a much higher level of site fidelity than we had originally expected



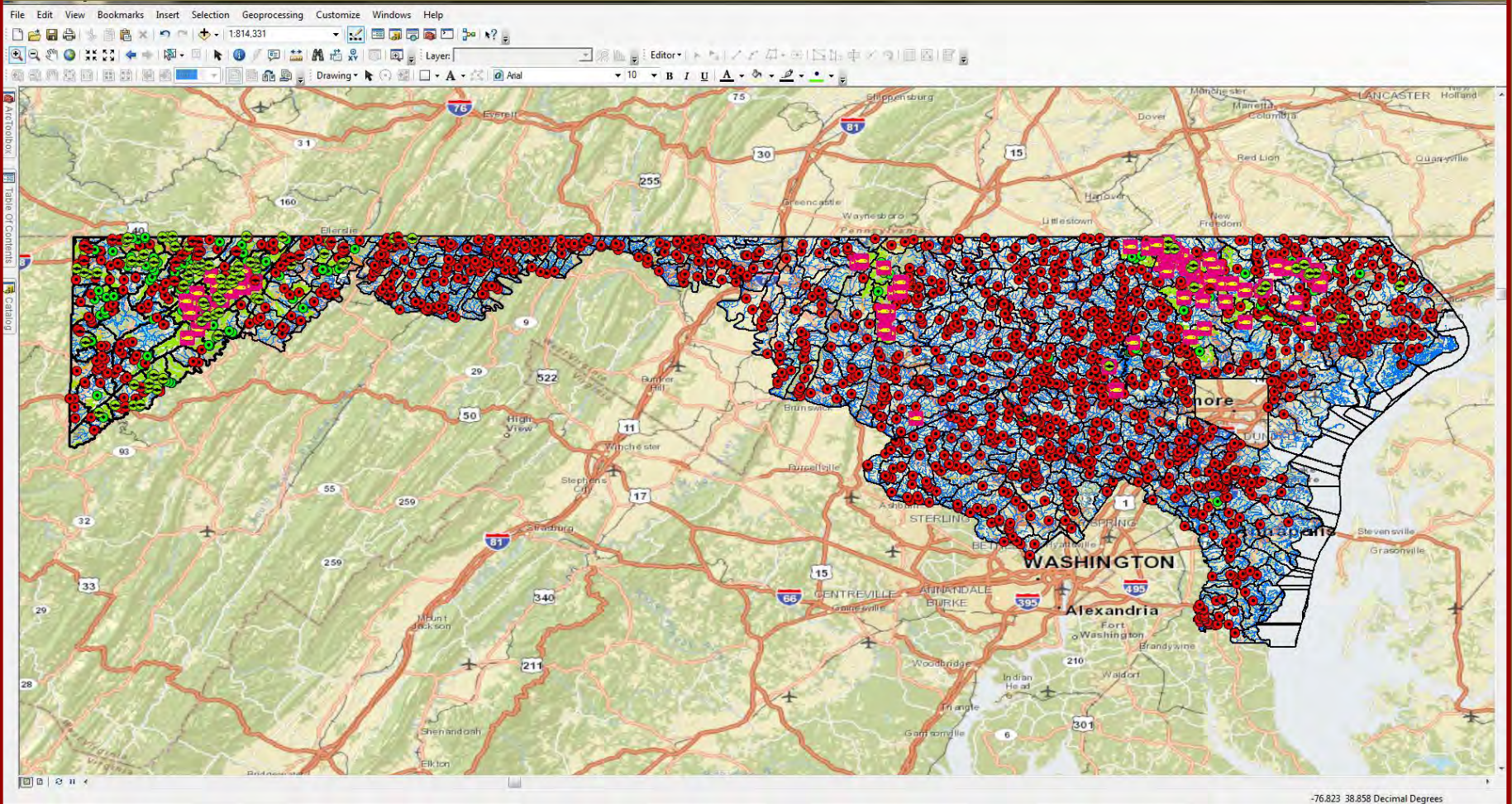
# Future Directions

- Genetics: Discrete Population or Metapopulation?
- Population Census
- Habitat Protection and Enhancement





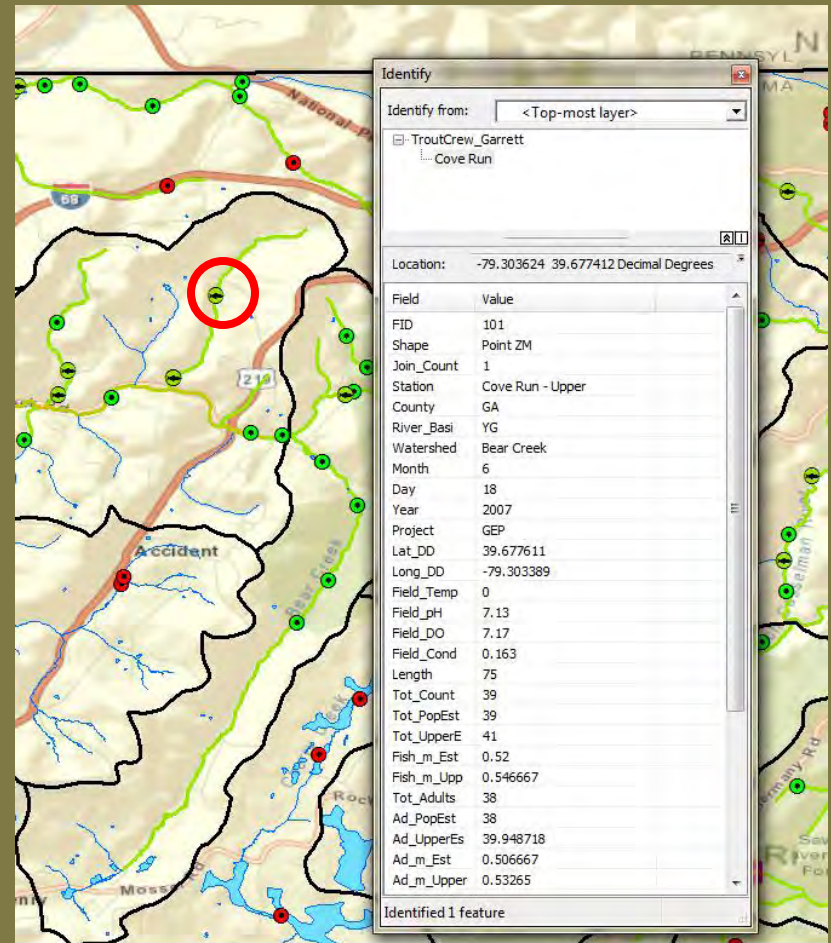
# Maryland Brook Trout Database



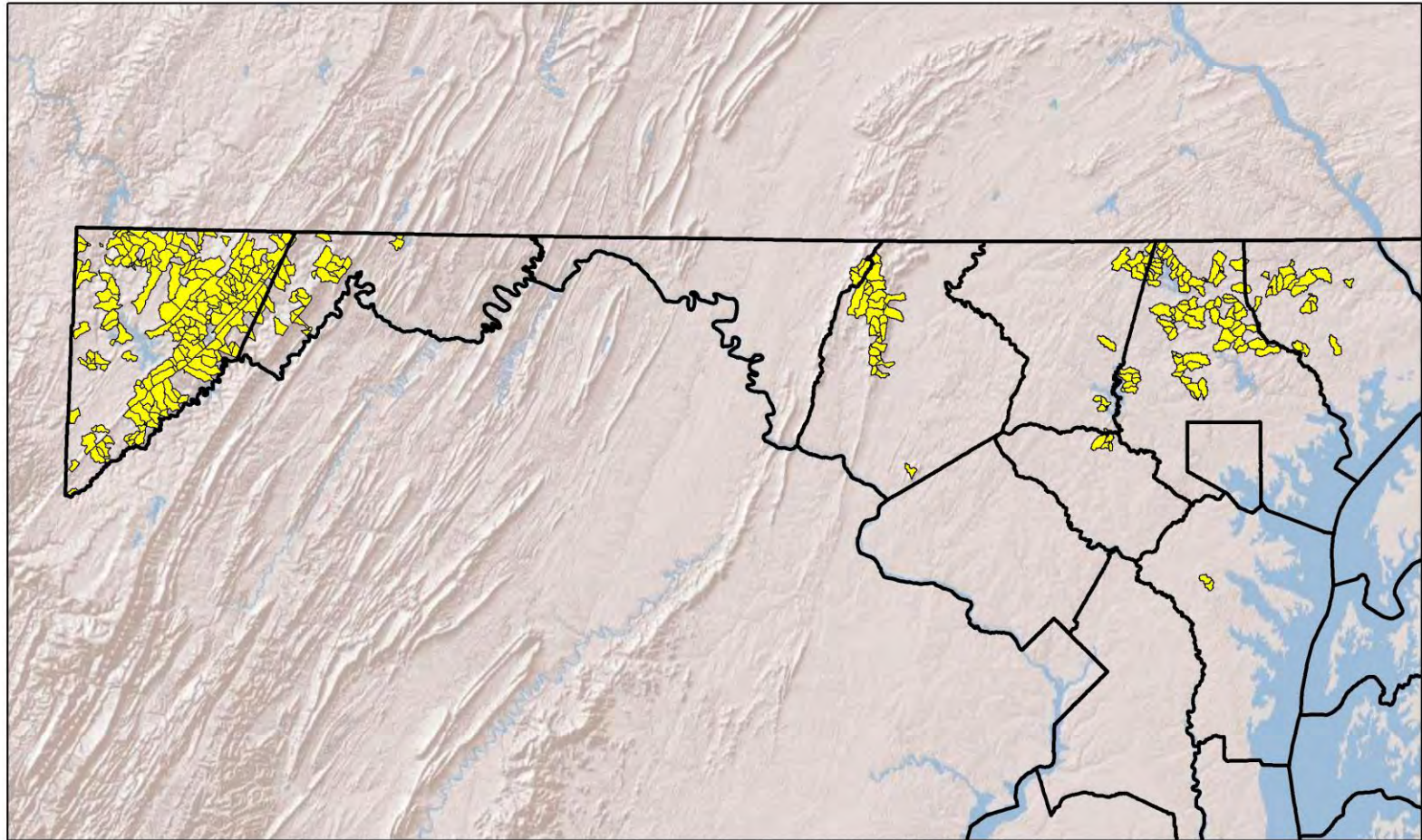


# Maryland Brook Trout Database

- Incorporates DNR Fisheries, MBSS, University of MD, and other data
- With minimal training and the provided tutorial, Fisheries staff can now search available brook trout data, associated fish species data, as well as create clean and accurate maps



# Brook Trout Distribution in Maryland



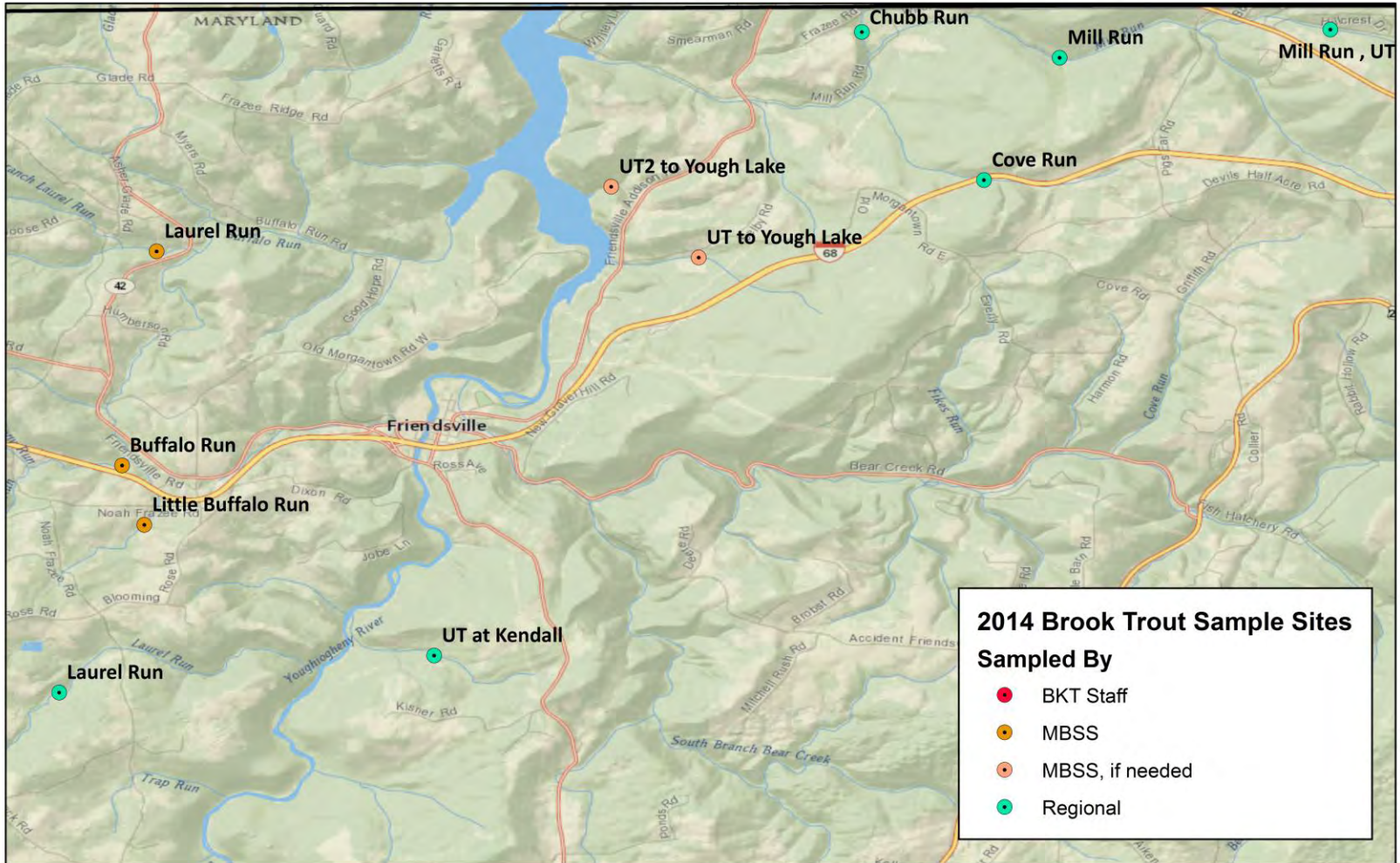
## Legend

 Brook Trout Present





# 2014 BKT Sampling Buffalo Run/Youg Res. Watersheds



# The Future

- The data has come from different places with different information... the next step will be to consolidate the information!
- Many sources of information have not been gathered yet, such as information available from the collection permit database, NGOs, etc.
- Get folks to use and help improve the database!!!



Alan Heft (*left*) experiences the GIS database with Matt Sell for the first time.



Questions?

