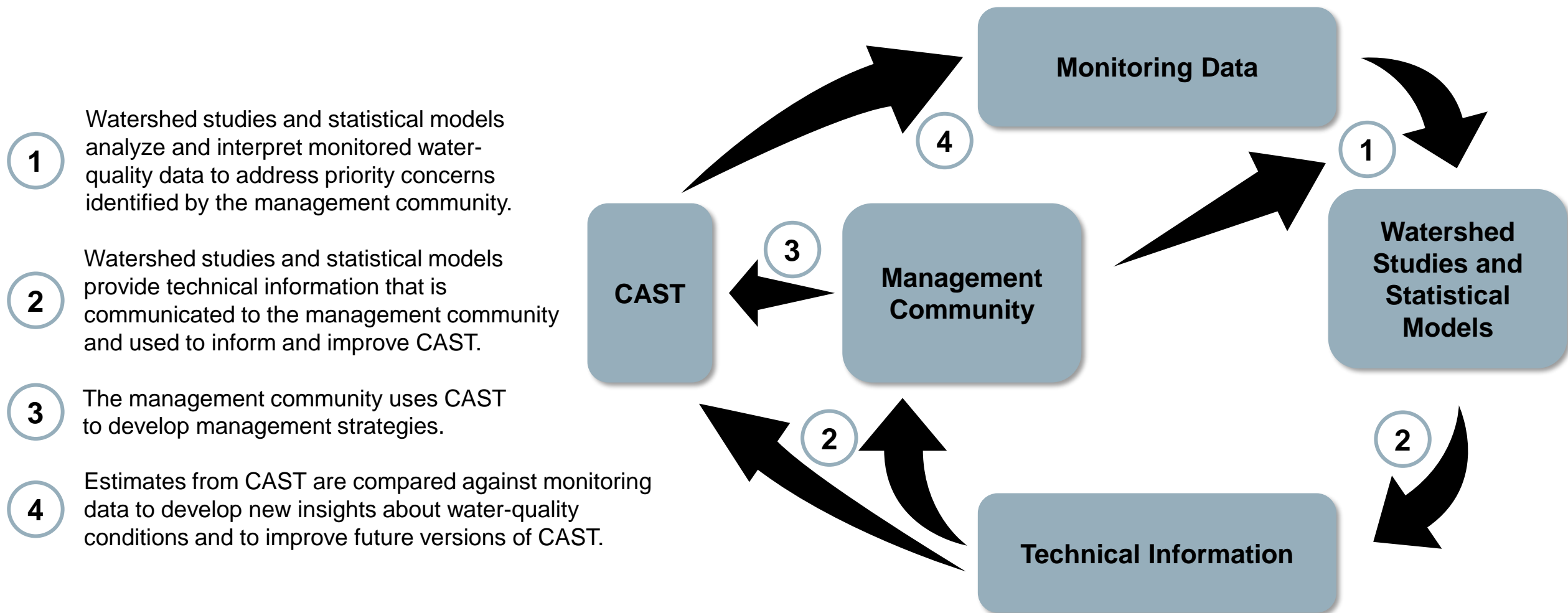


The role of monitoring data in model development

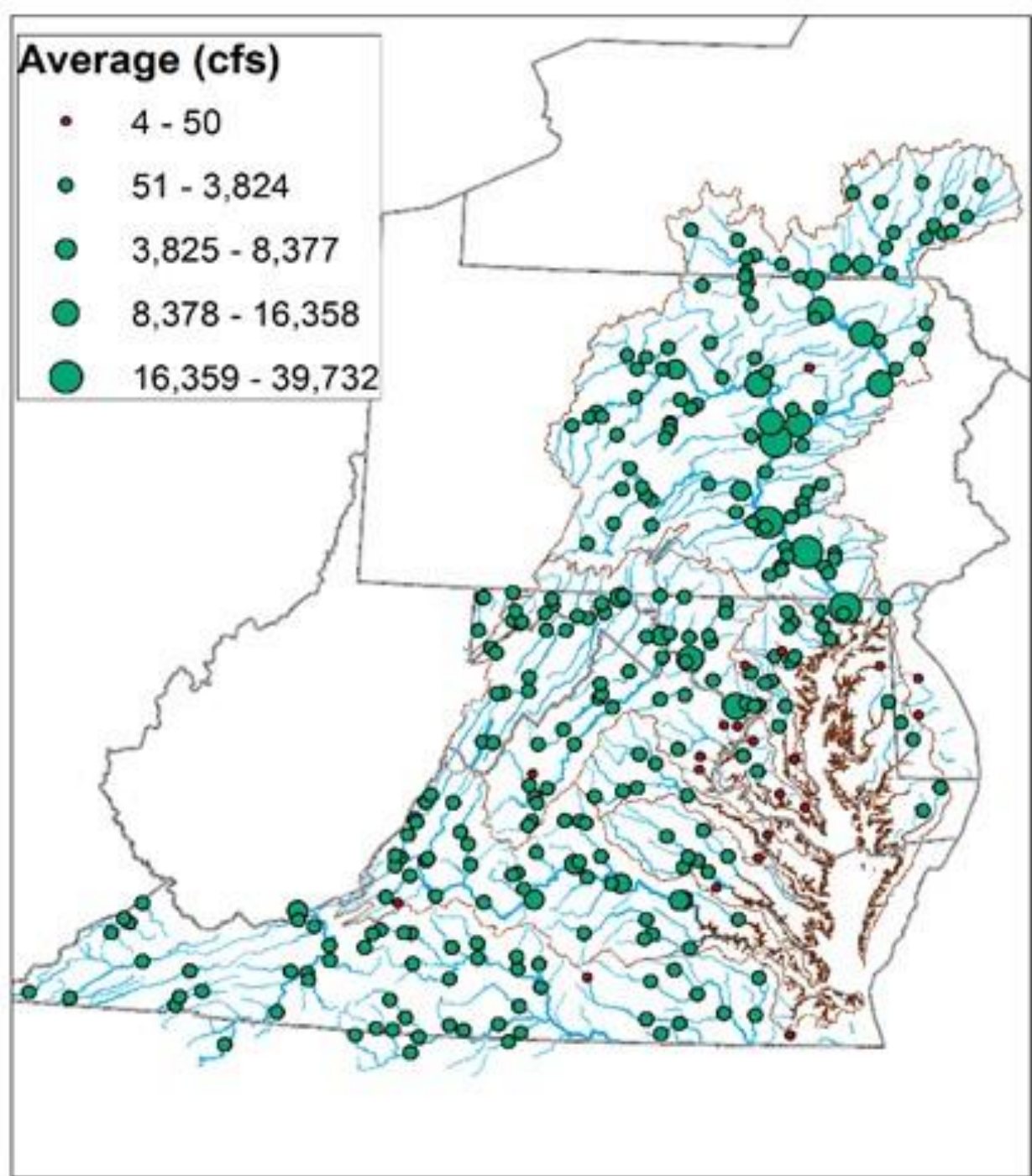
Gary Shenk – CBPO

WQGIT 10/25/2021

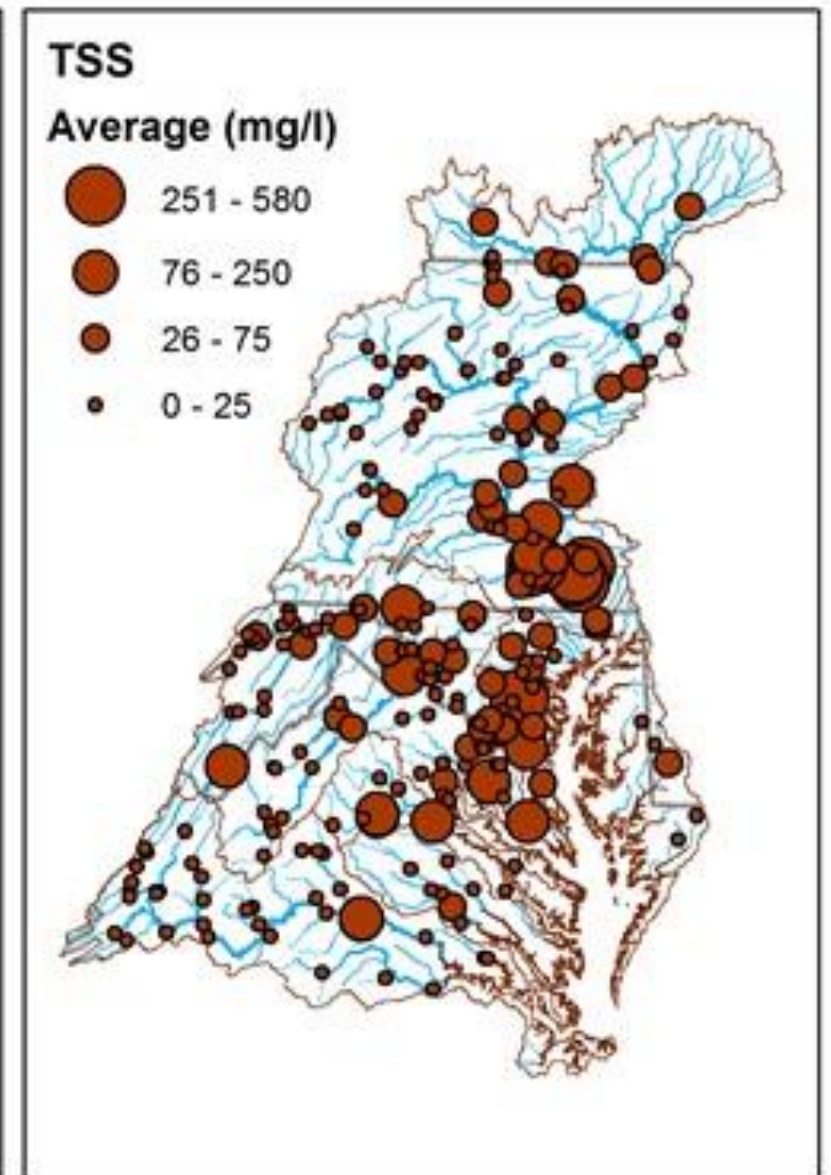
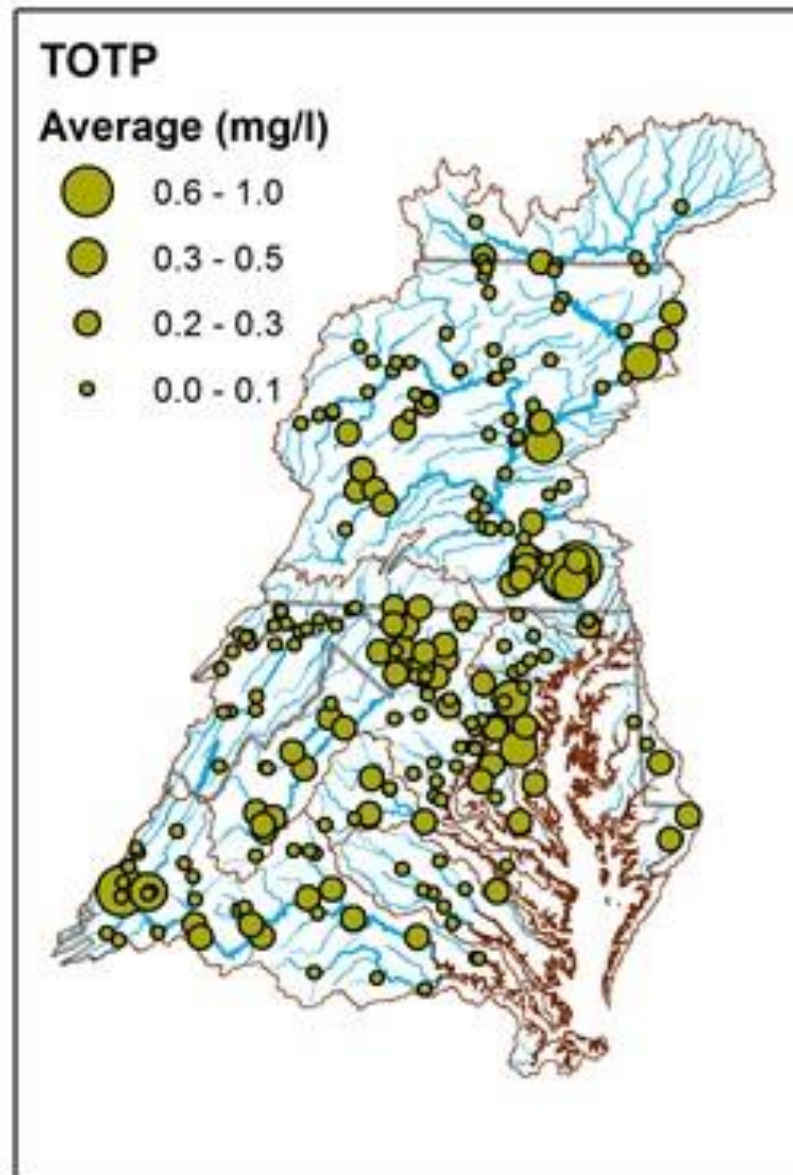
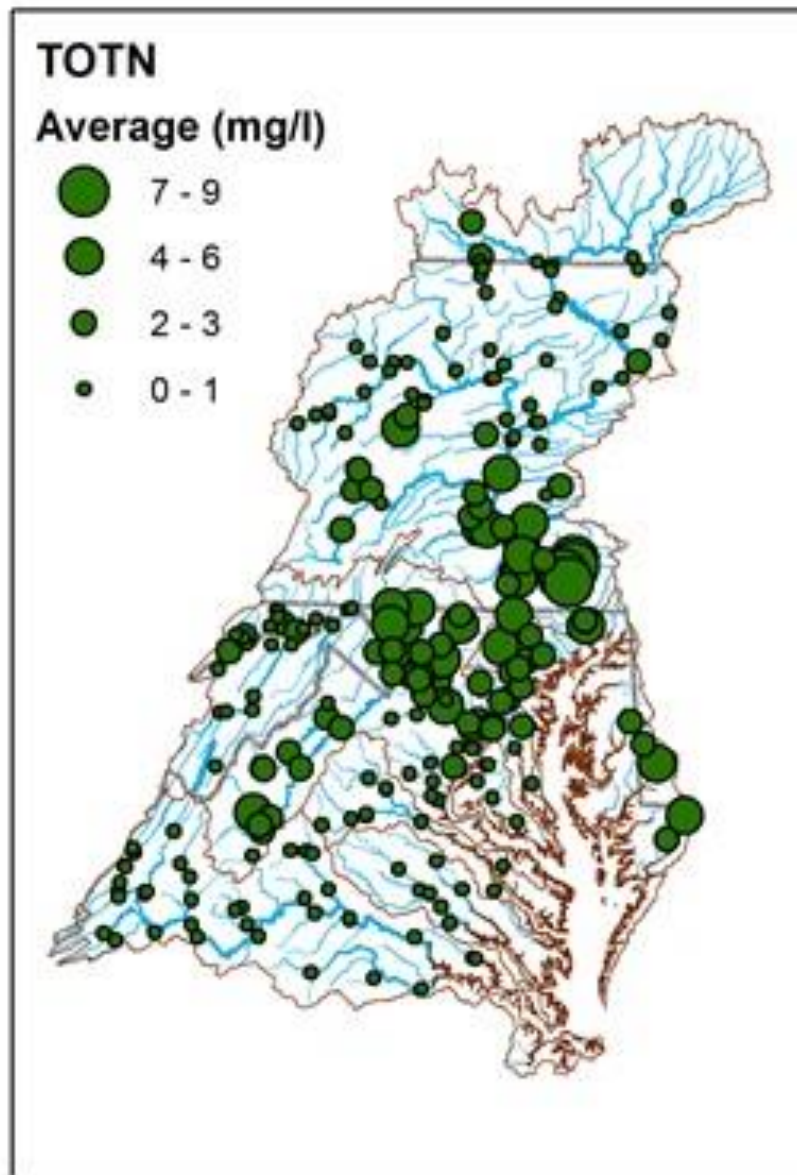
CAST is built on a foundation of monitoring data



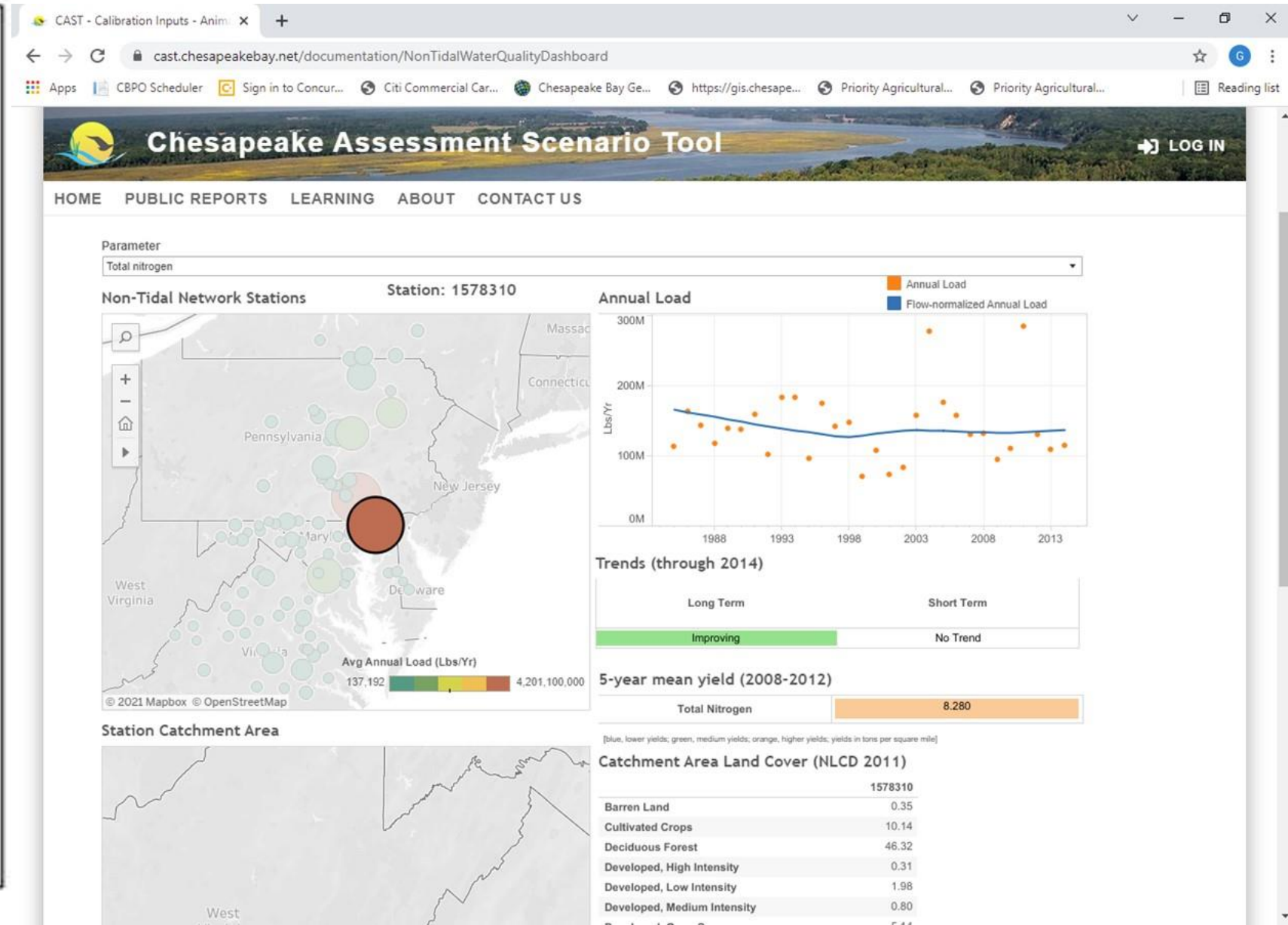
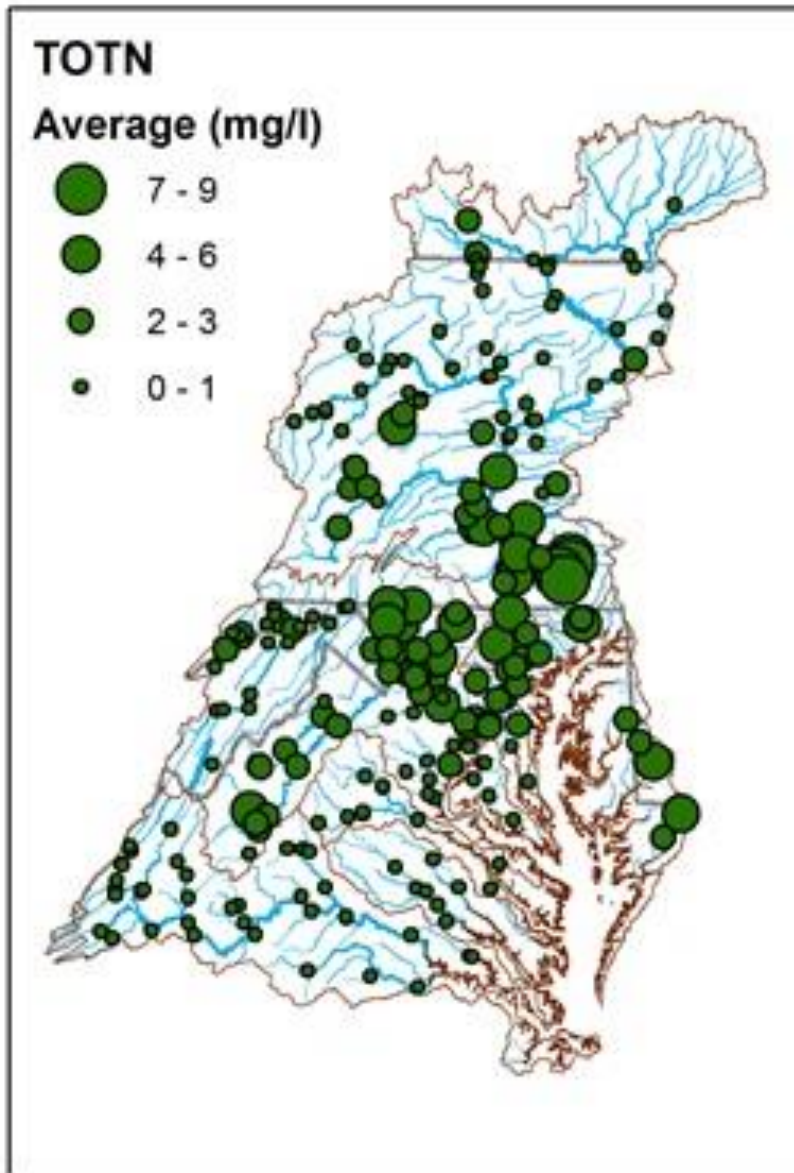
Phase 6 flow stations



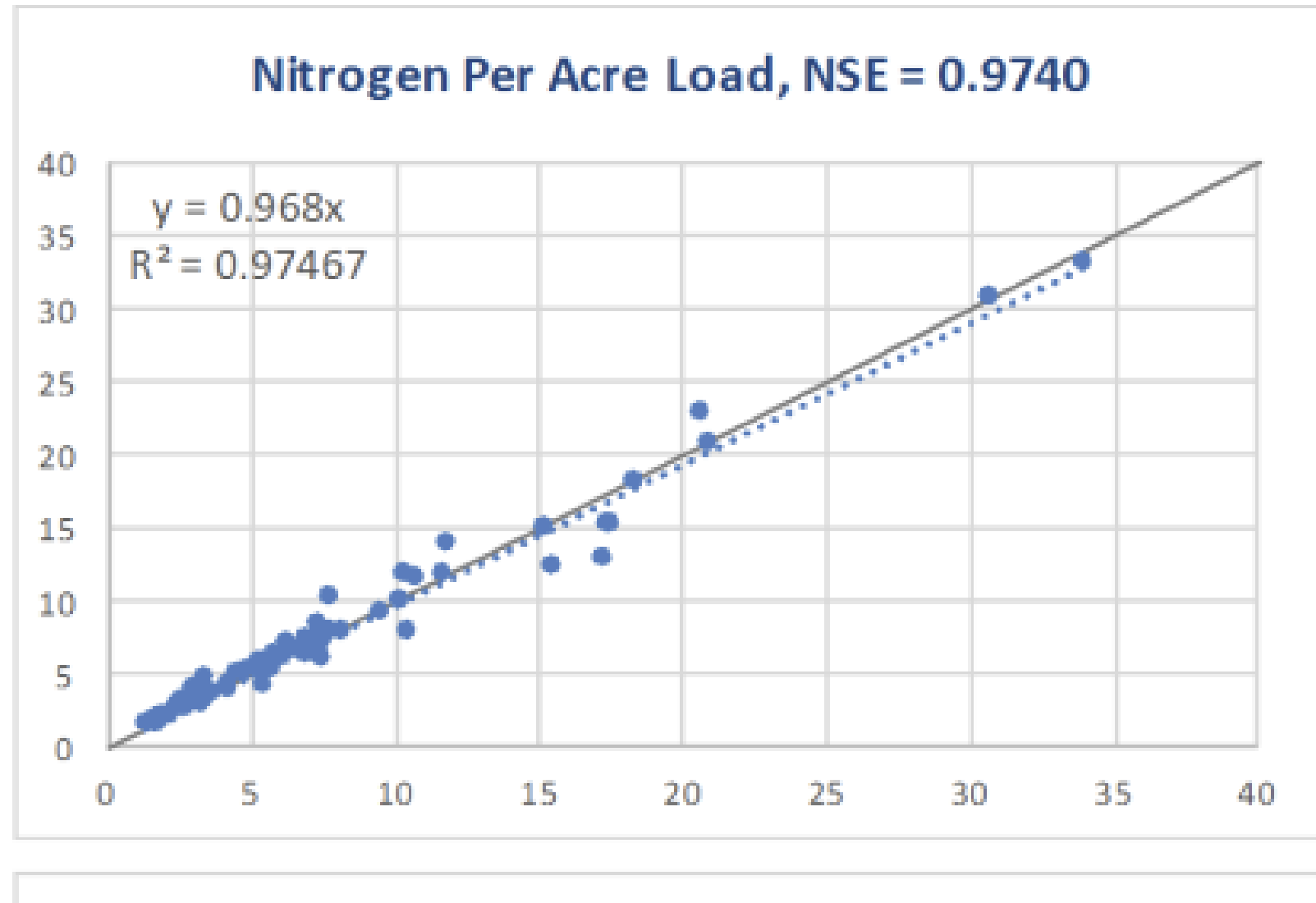
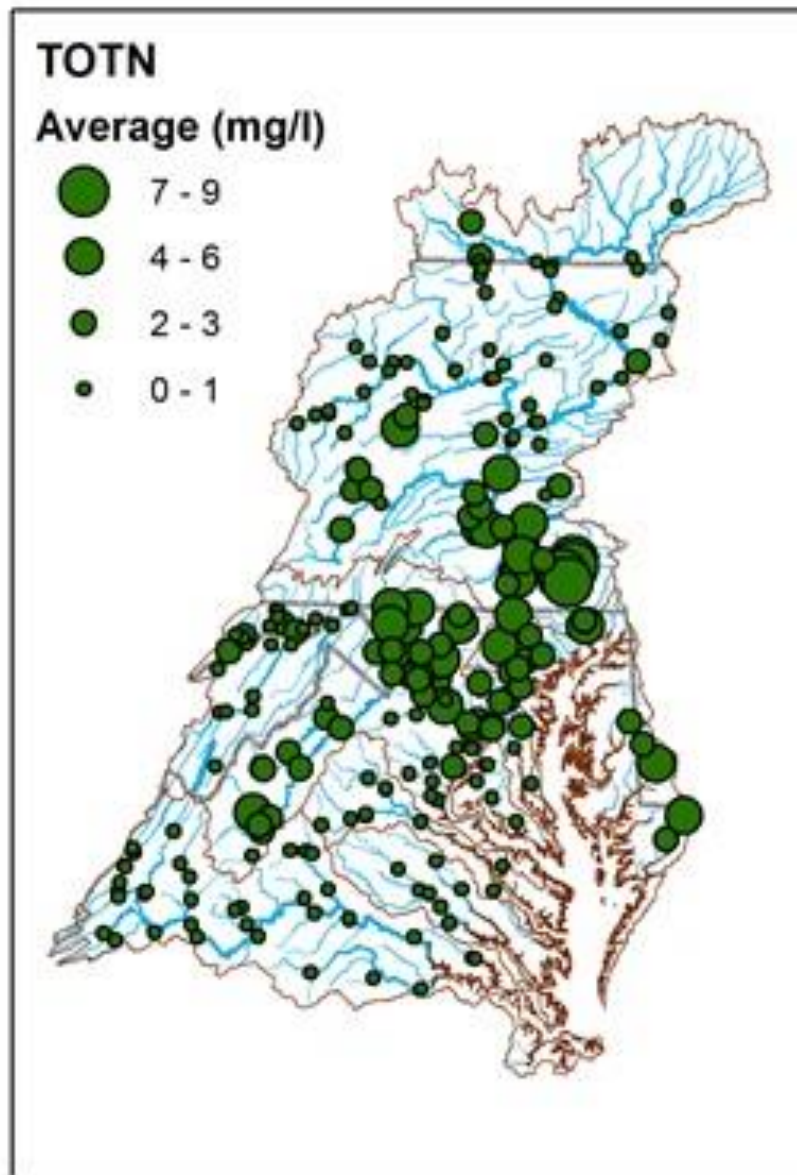
Monitoring Stations



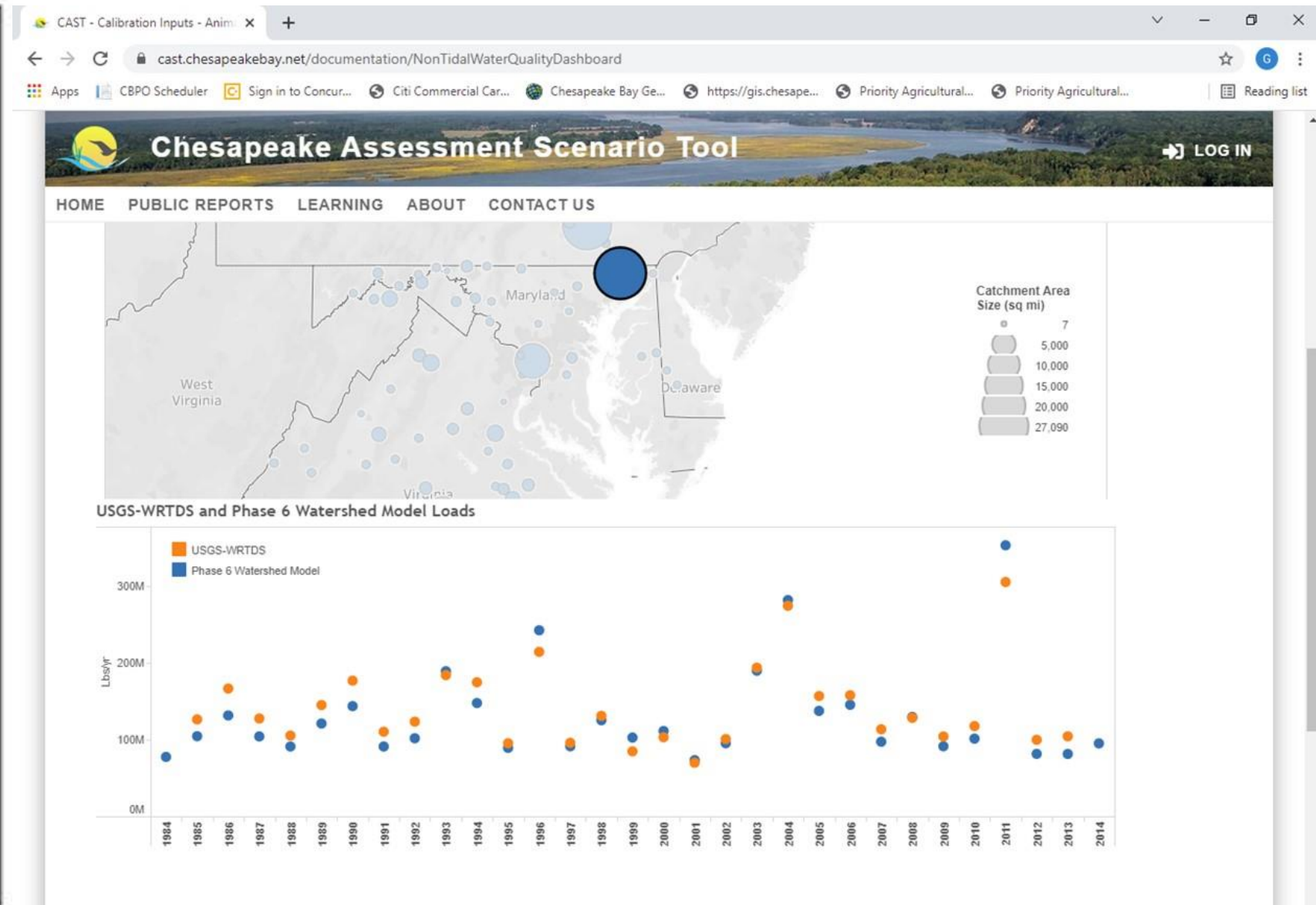
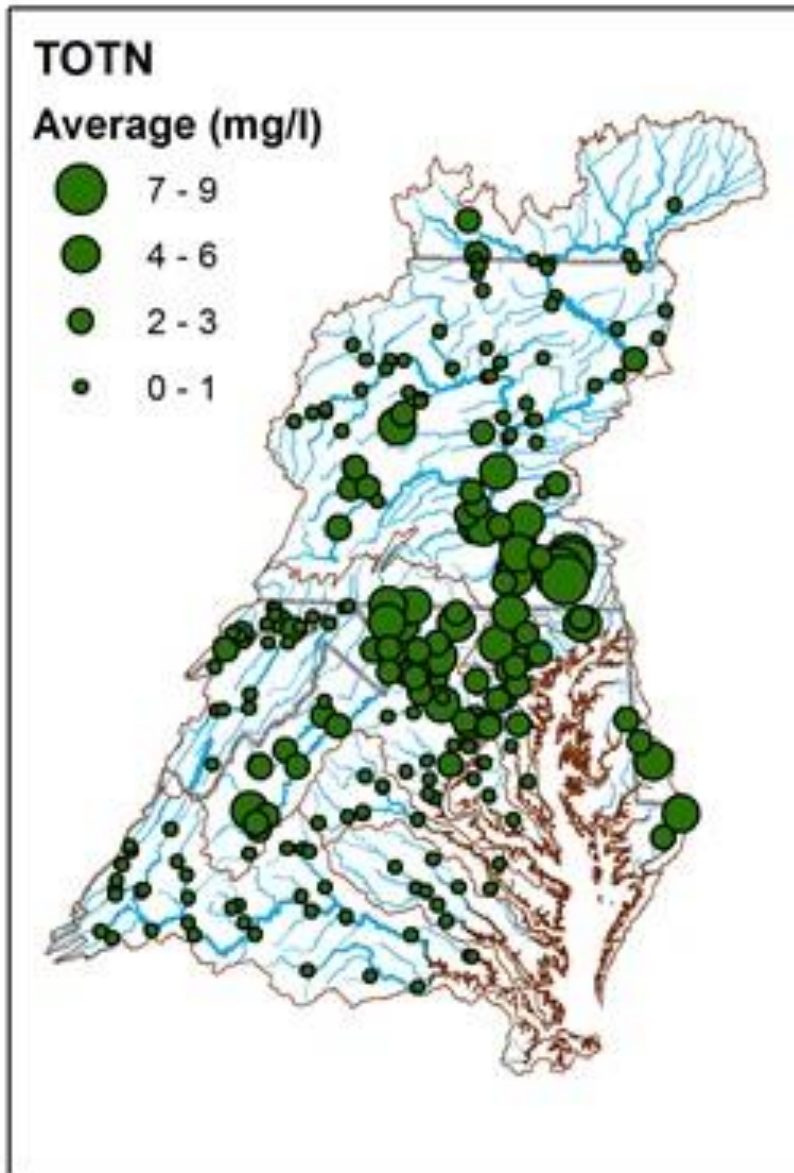
USGS Analysis Products – WRTDS loads



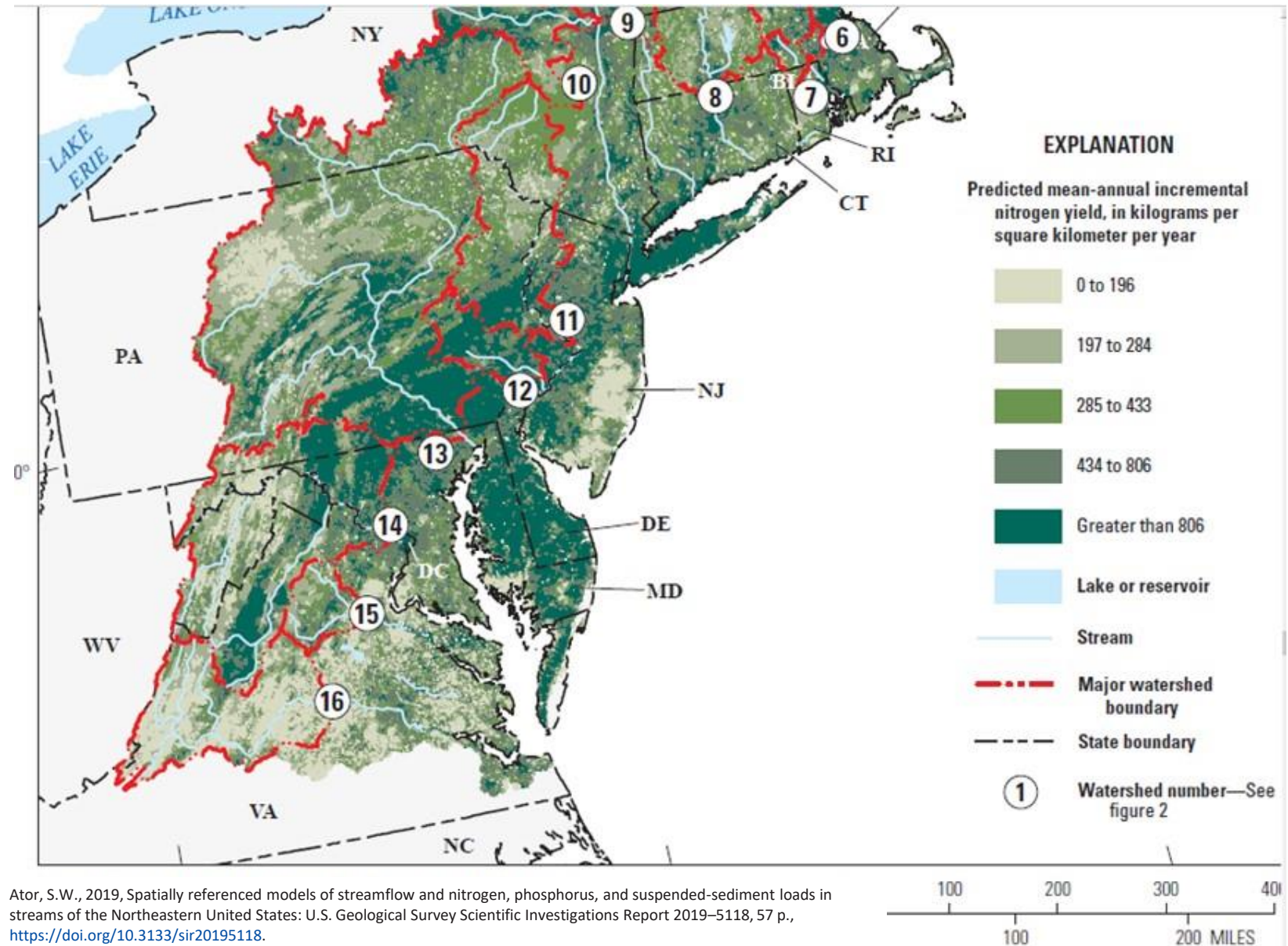
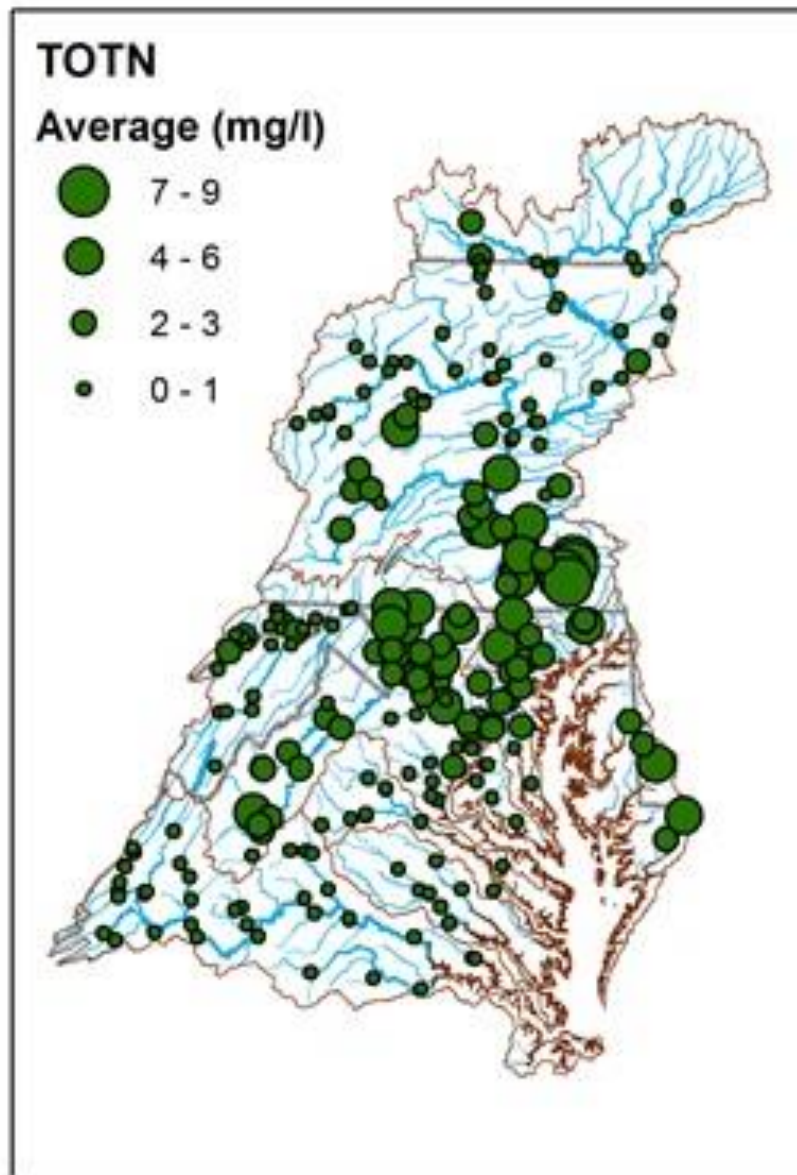
USGS Analysis Products – WRTDS loads



USGS Analysis Products – WRTDS loads

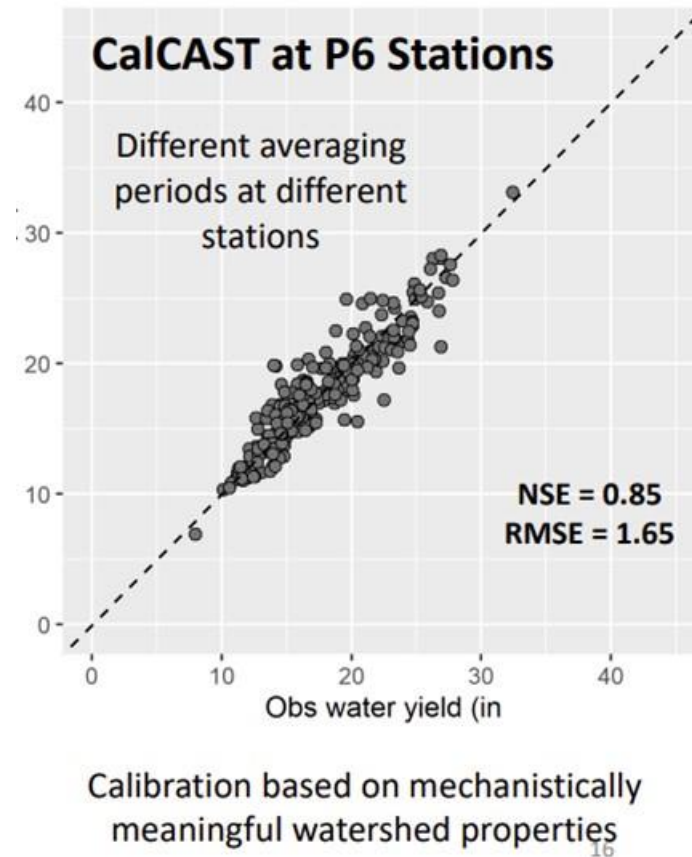
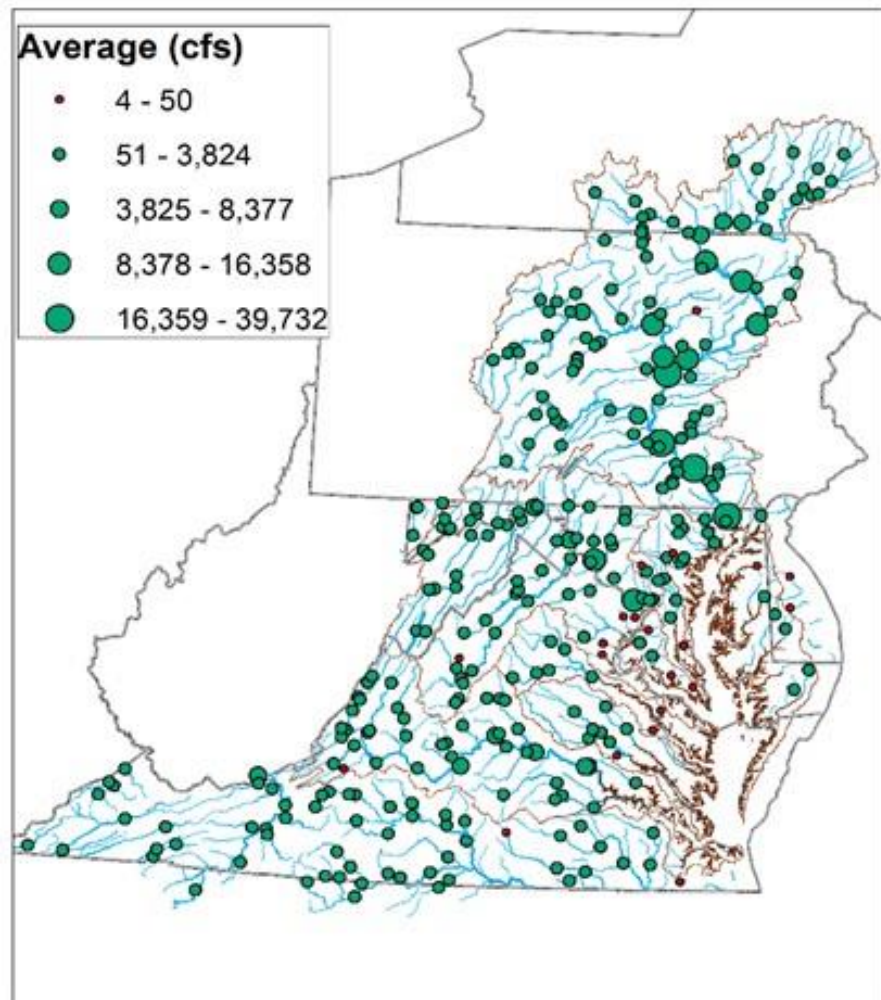


USGS Analysis Products – SPARROW



Ator, S.W., 2019, Spatially referenced models of streamflow and nitrogen, phosphorus, and suspended-sediment loads in streams of the Northeastern United States: U.S. Geological Survey Scientific Investigations Report 2019–5118, 57 p., <https://doi.org/10.3133/sir20195118>.

CBPO Analysis Products



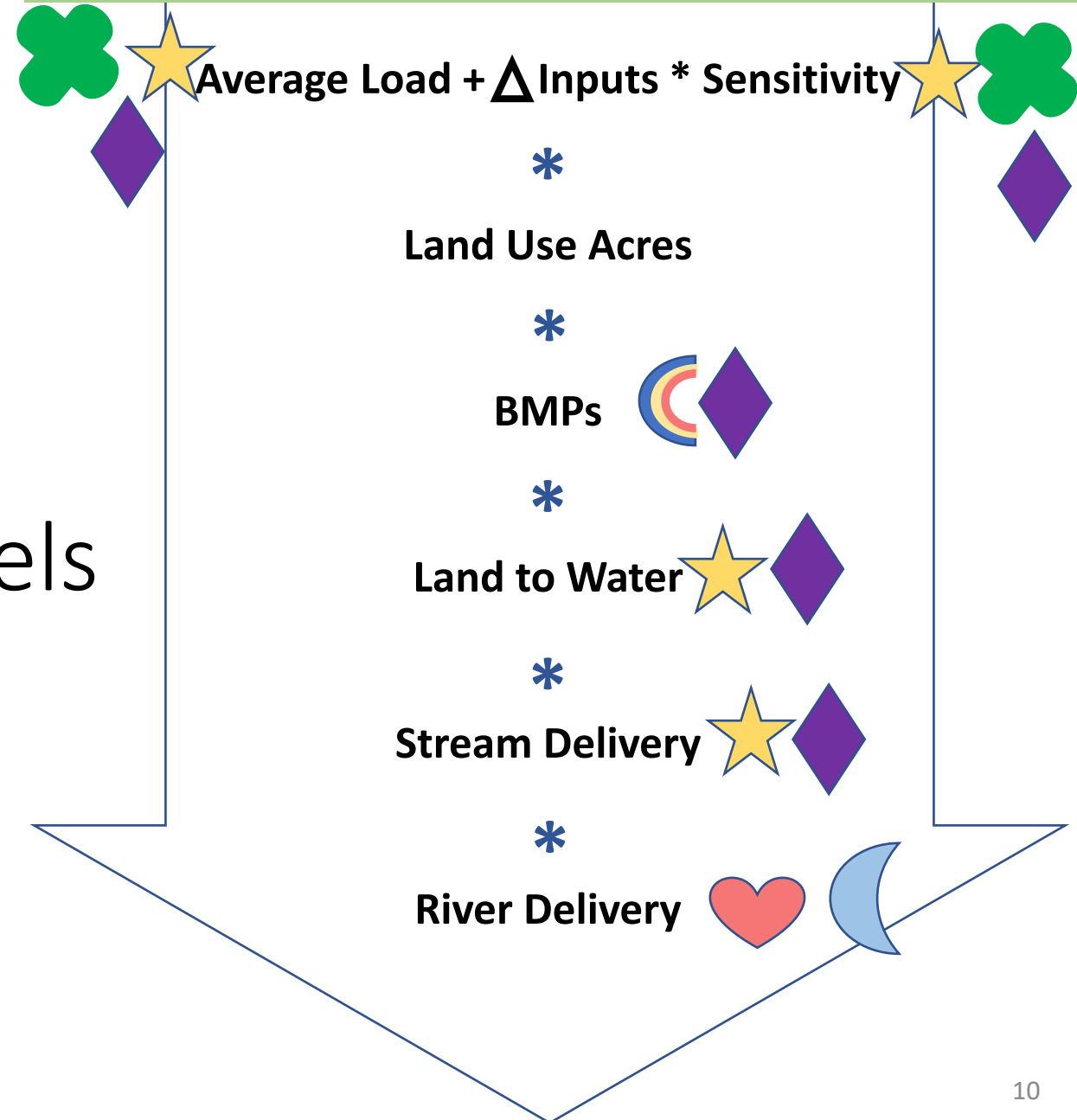
Flow predicted by:

- Precip
- Temperature
- Land use
- Groundwater recharge
- Abandoned mine drainage
- Topographic wetness index

Use of river monitoring data in CAST

- ♥ Concentrations
- ☾ WRTDS
- ★ Sparrow
- ✕ Calibrated process models
- 🌈 Field-scale monitoring
- ◆ Synthesis Products

Phase 6 Model Structure



Summary

- Monitoring is used extensively in modeling
 - Coefficients
 - Calibration
 - Comparison with model predictions of load change
- A new model will use new
 - Observations
 - Synthesis and analysis products