

South River Mercury TMDL Study

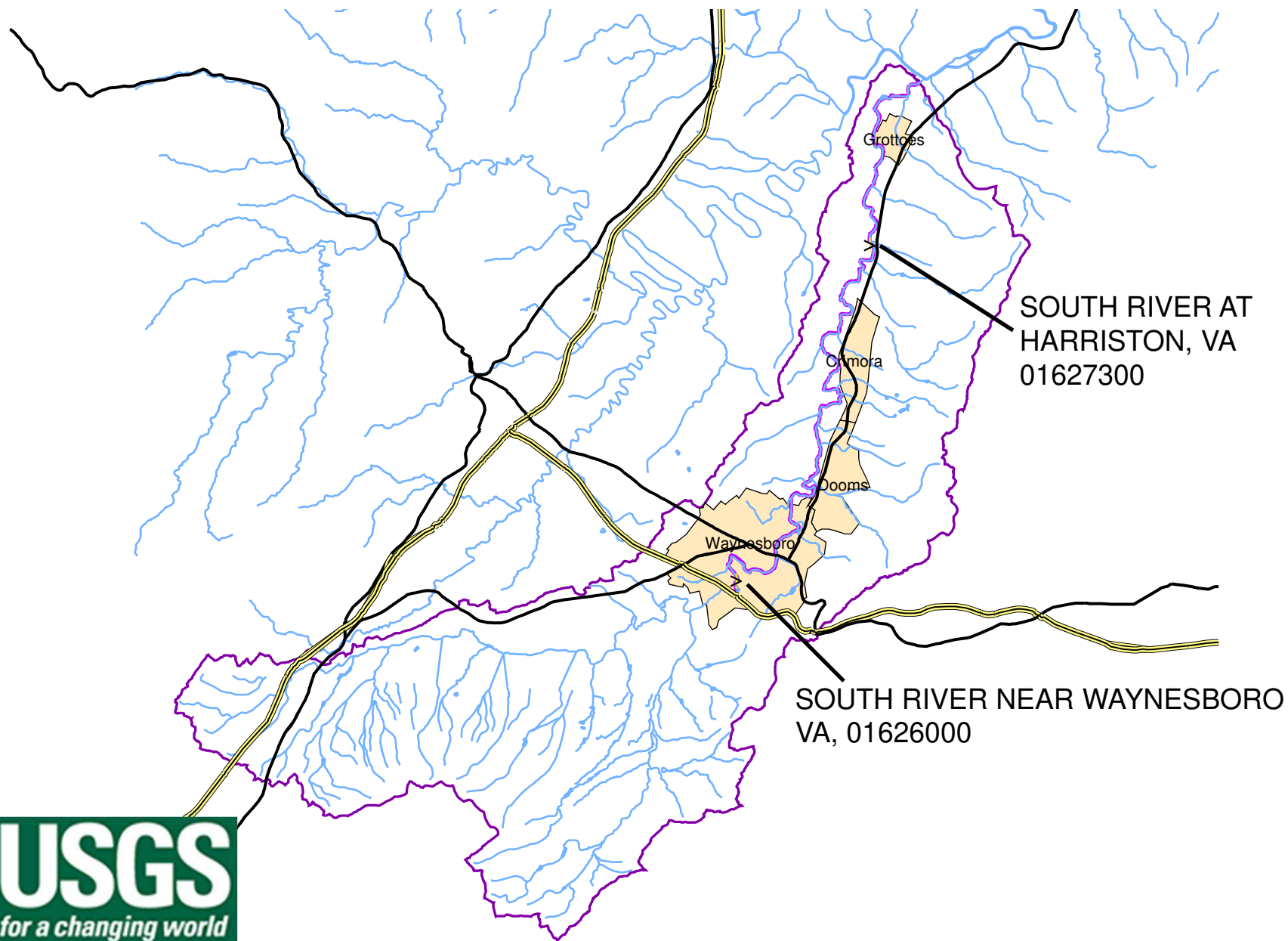
Jack Eggleston



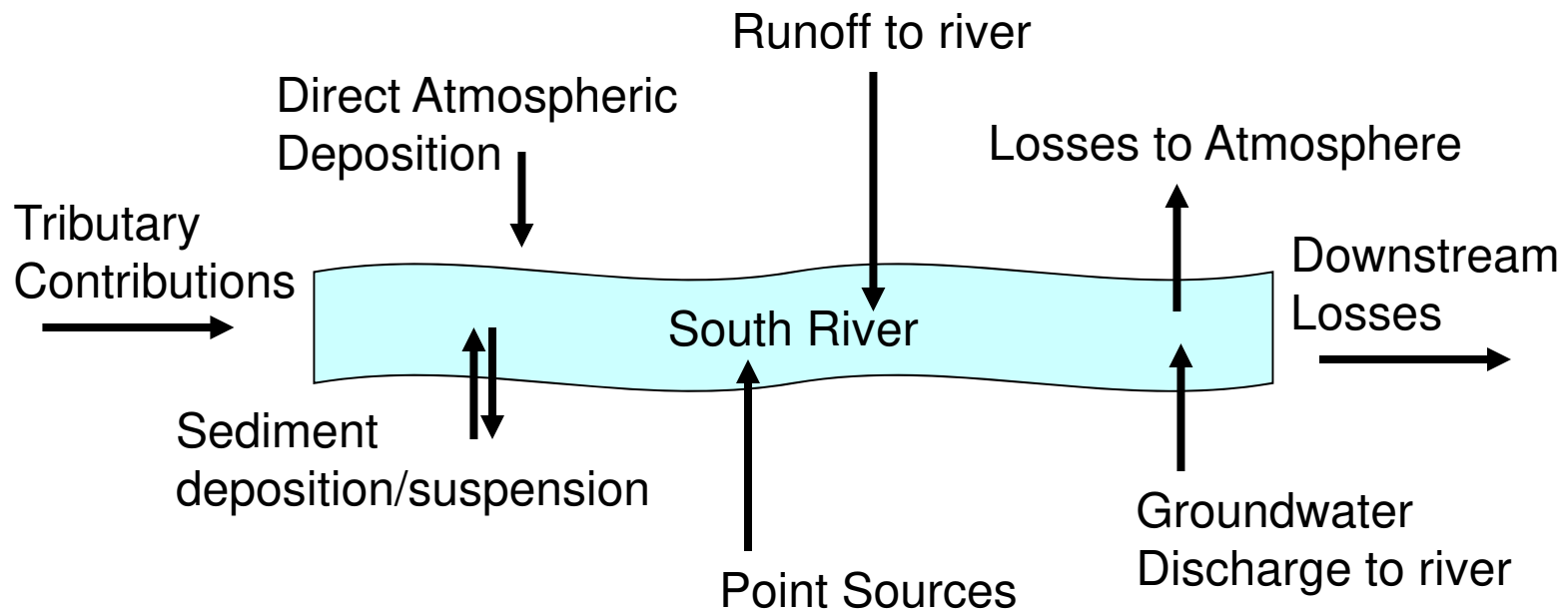
South River Mercury TMDL: Study Goals

- Characterize cycling of total mercury and methyl mercury
- Develop mathematical models for simulating surface water flows and methyl mercury production and transport
- Determine loading reductions needed to achieve fish tissue Hg levels of less than 0.5 ppm

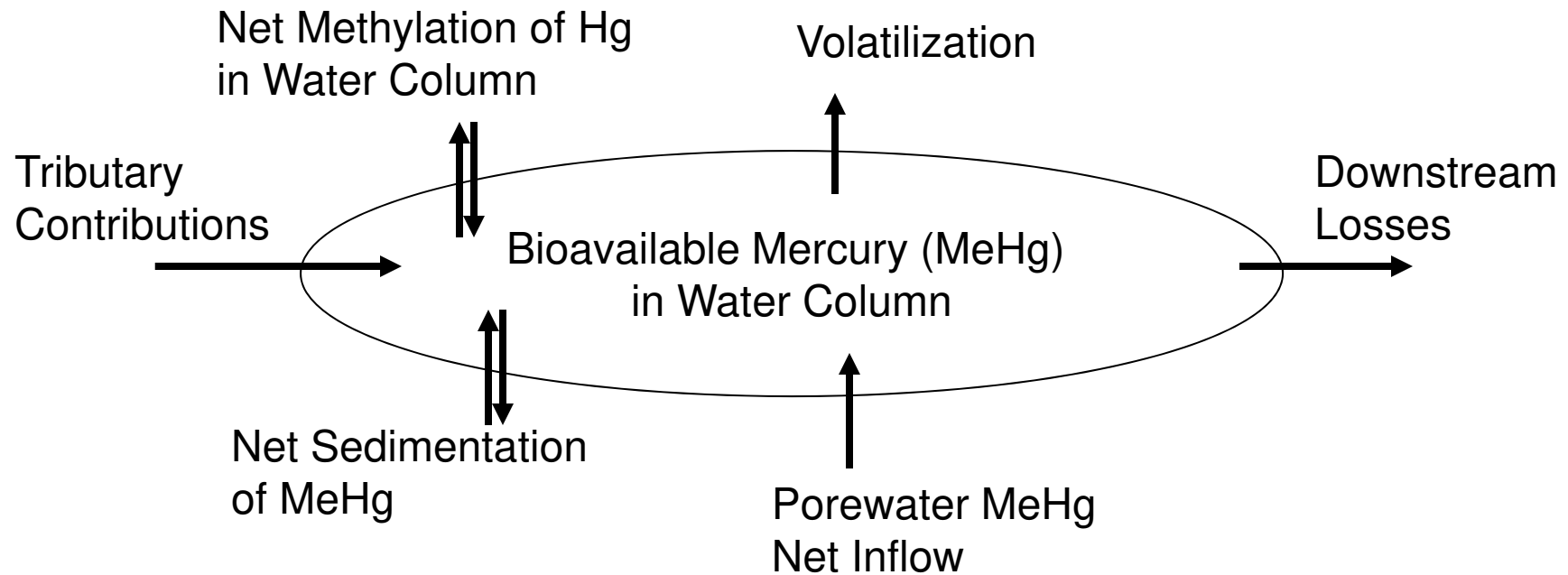
South River Mercury TMDL : Study Area



Mass Balance of Total Mercury



Mass Balance of Methyl Mercury



Streamflow Monitoring

2 Existing Continuous Stations

Waynesboro, 01626000
1952-present

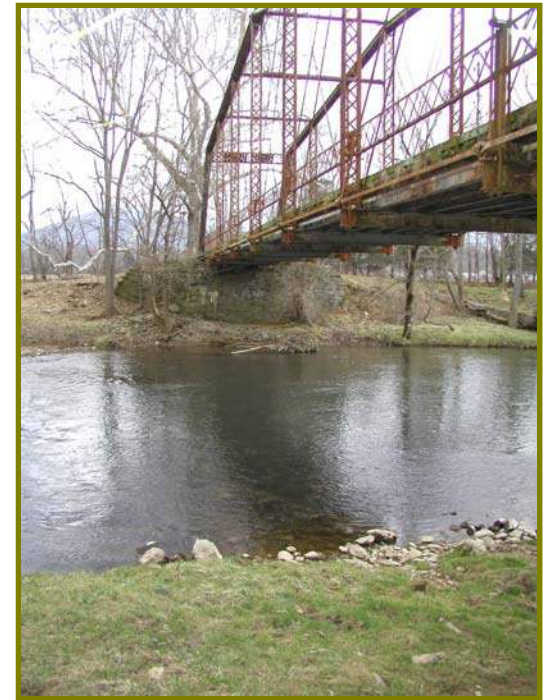


Harriston, 01627300
1925-present



1 New Periodic Station

Dooms



Continuous WQ Monitoring – Proposed Locations

Waynesboro



Dooms



Harriston



Continuous Stream WQ Monitoring Equipment

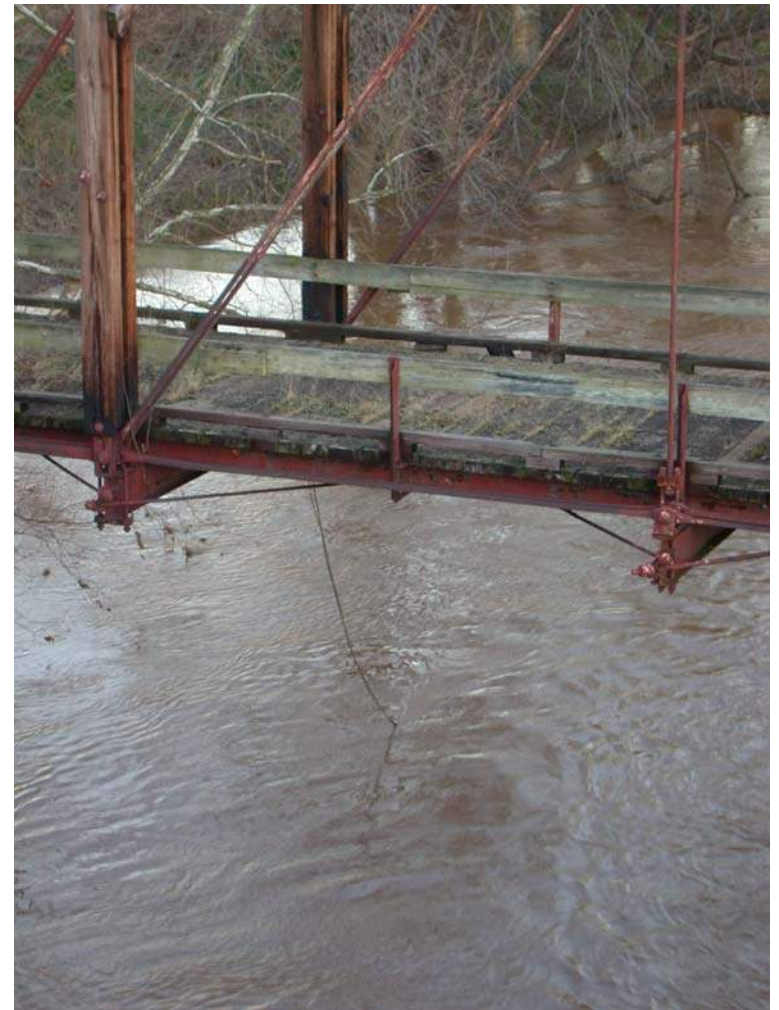


Sensors

Out of Water

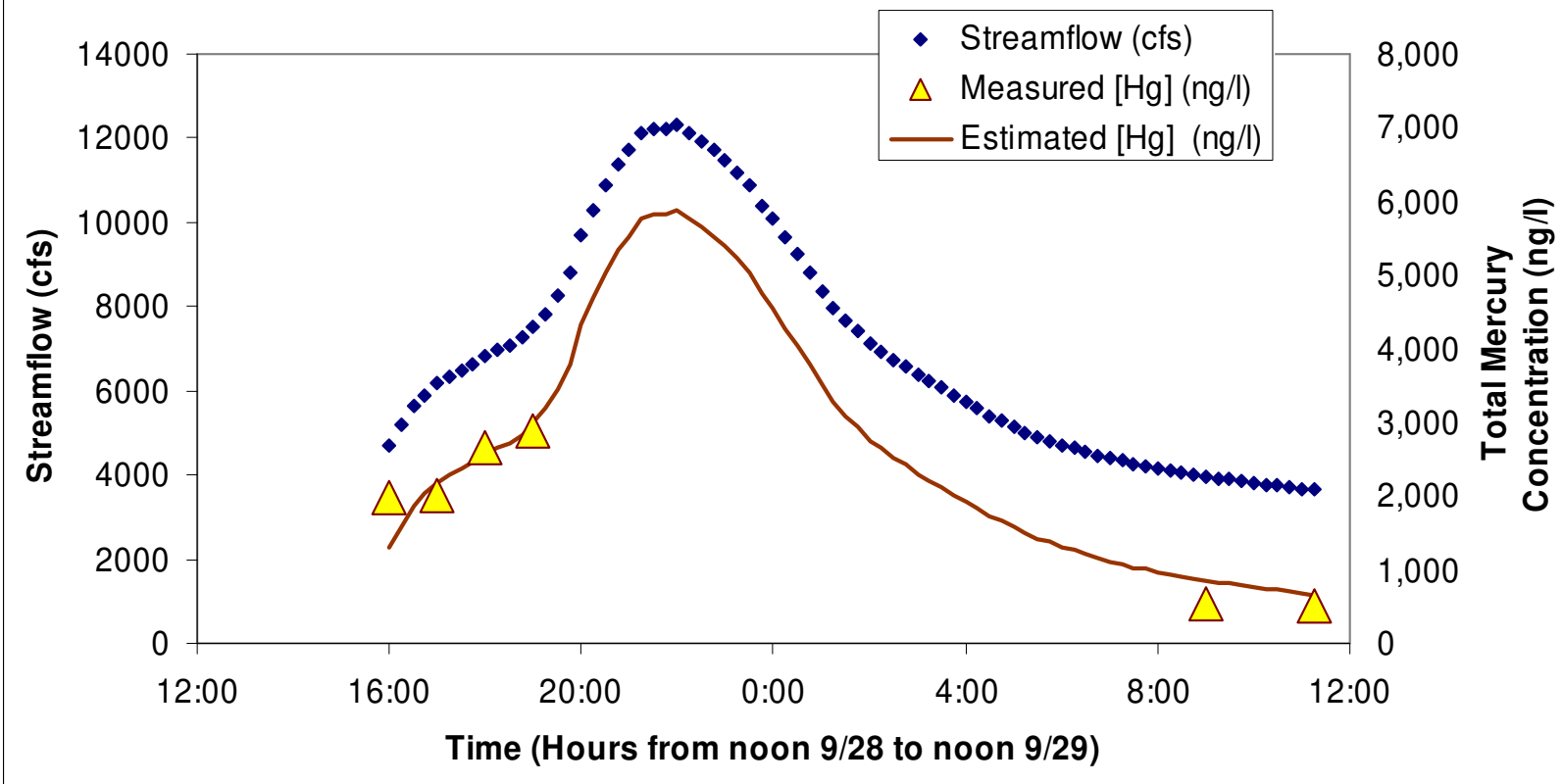


In the James River at Cartersville



Mercury Loading Rate – Example Calculation

Hurricane Jeanne - September 28, 2004 Streamflow and Mercury Concentrations at Harriston



$$\begin{aligned}\text{Mercury Flux} &= \Sigma(\text{Concentration} \times \text{Flow}) \\ &= 46 \text{ kg over 19 hours}\end{aligned}$$

Thanks to Ted Turner
for outstanding
data collection and help.

Flow of this magnitude (6500 daily cfs)
has an average recurrence interval of 4 years