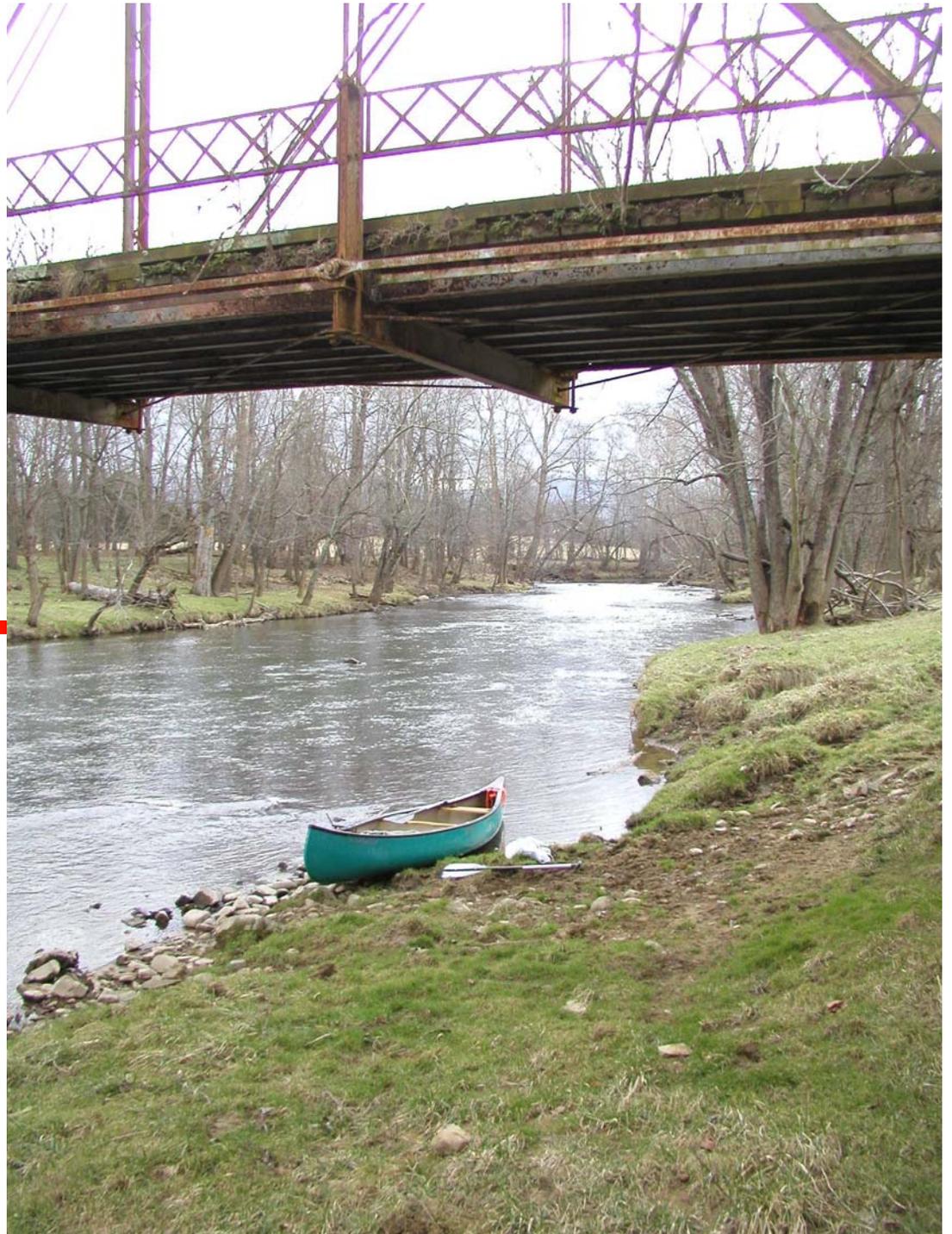


# South River Mercury TMDL Study

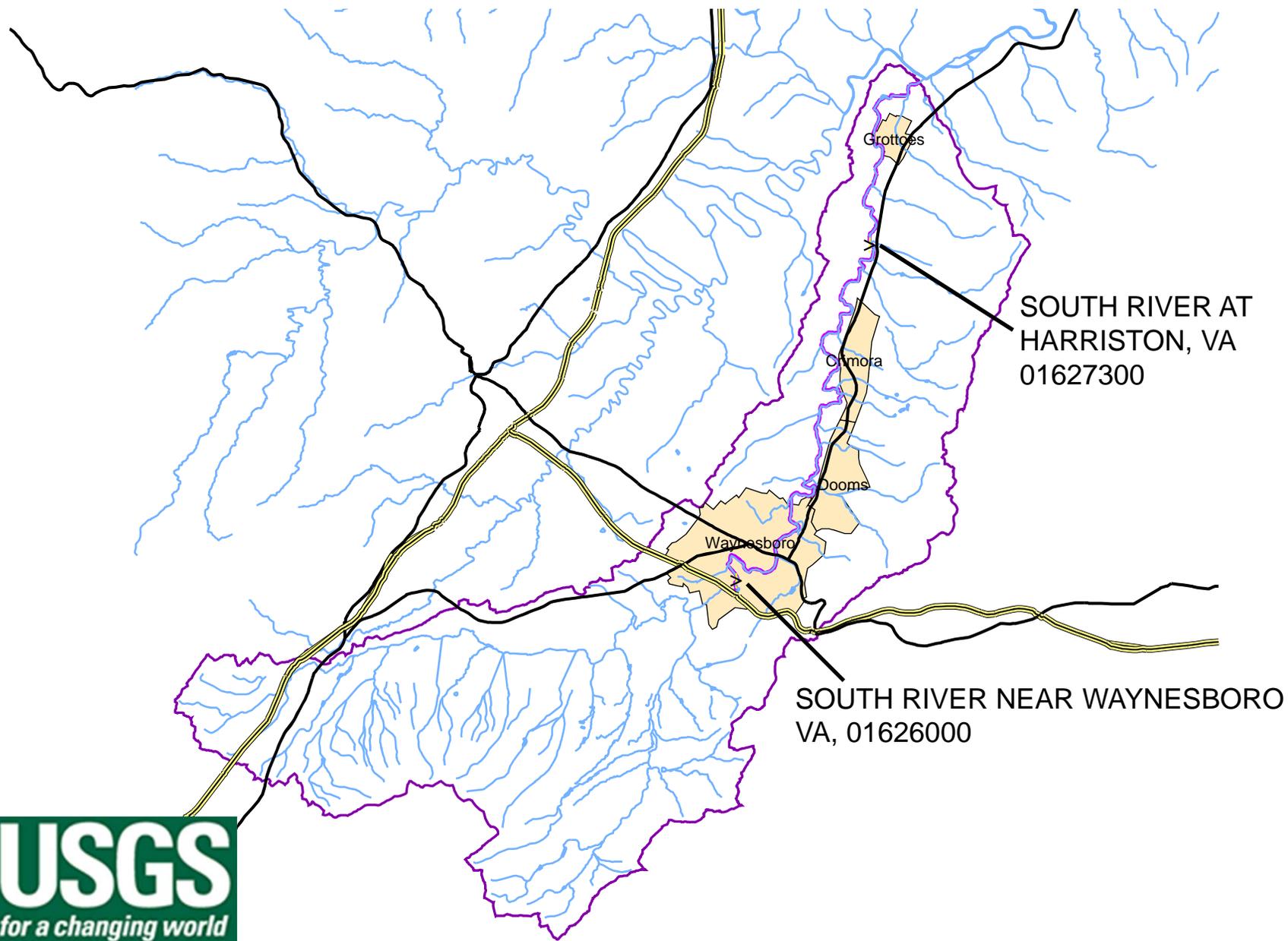
Jack Eggleston



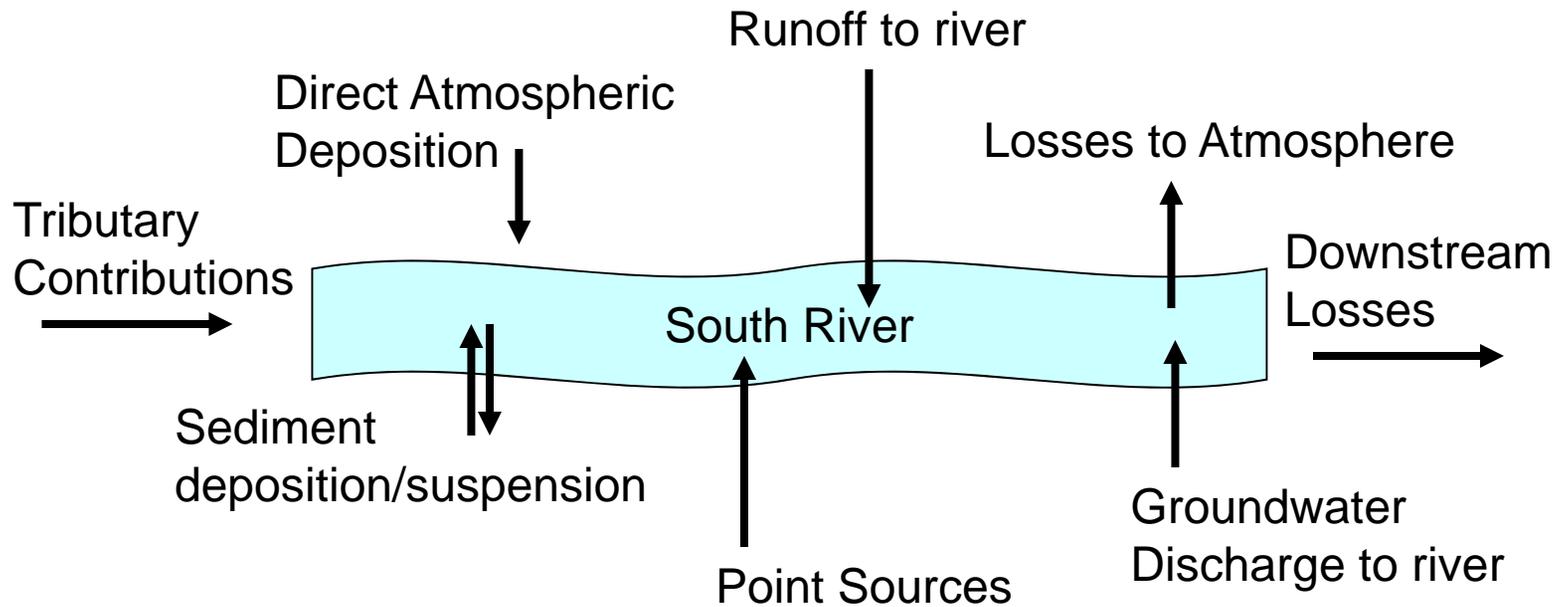
# South River Mercury TMDL: Study Goals

- 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

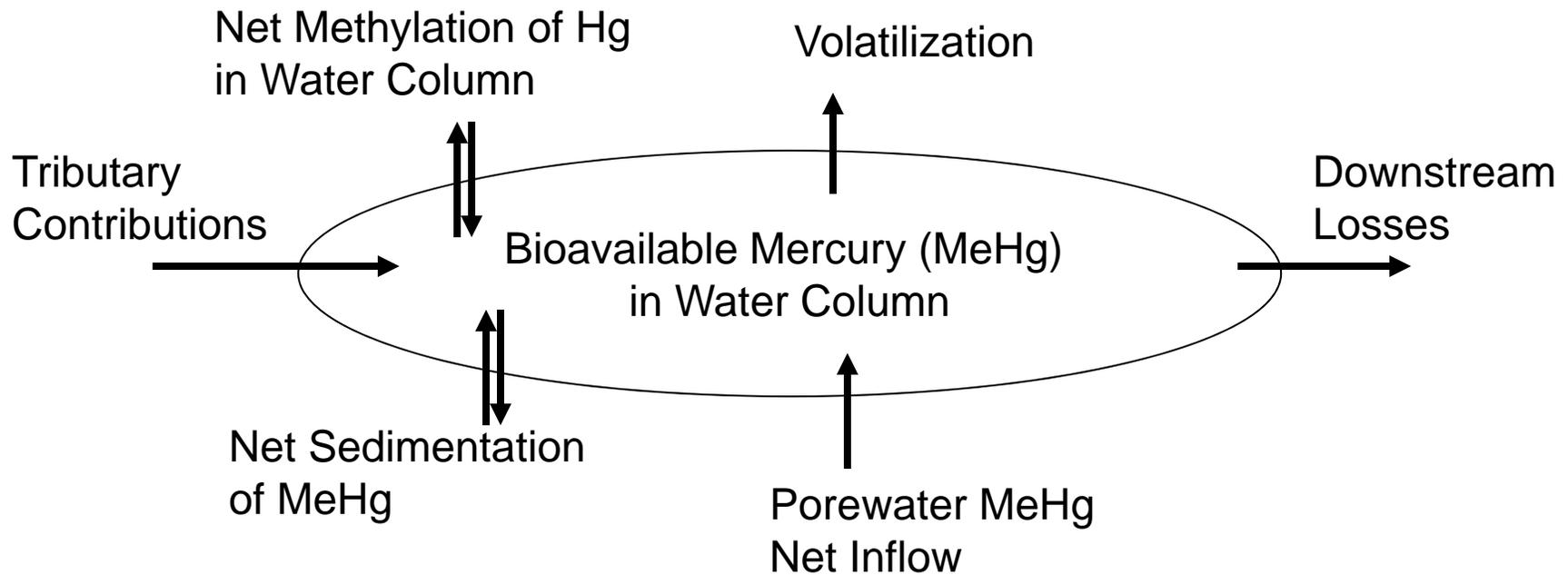
# South River Mercury TMDL : Study Area



# Mass Balance of Total Mercury



# Mass Balance of Methyl Mercury



# Streamflow Monitoring

## 2 Existing Continuous Stations

Waynesboro, 01626000  
1952-present

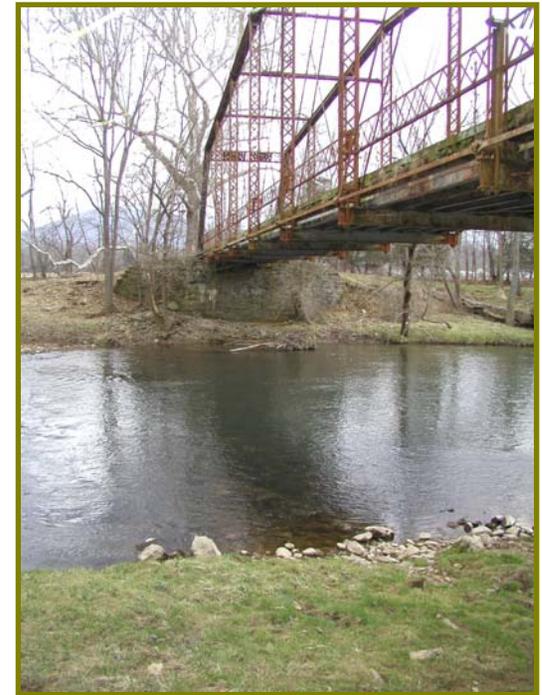


Harriston, 01627300  
1925-present



## 1 New Periodic Station

Dooms



# Continuous WQ Monitoring – Proposed Locations

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## Waynesboro



## Dooms



## Harriston



# Continuous Stream WQ Monitoring Equipment

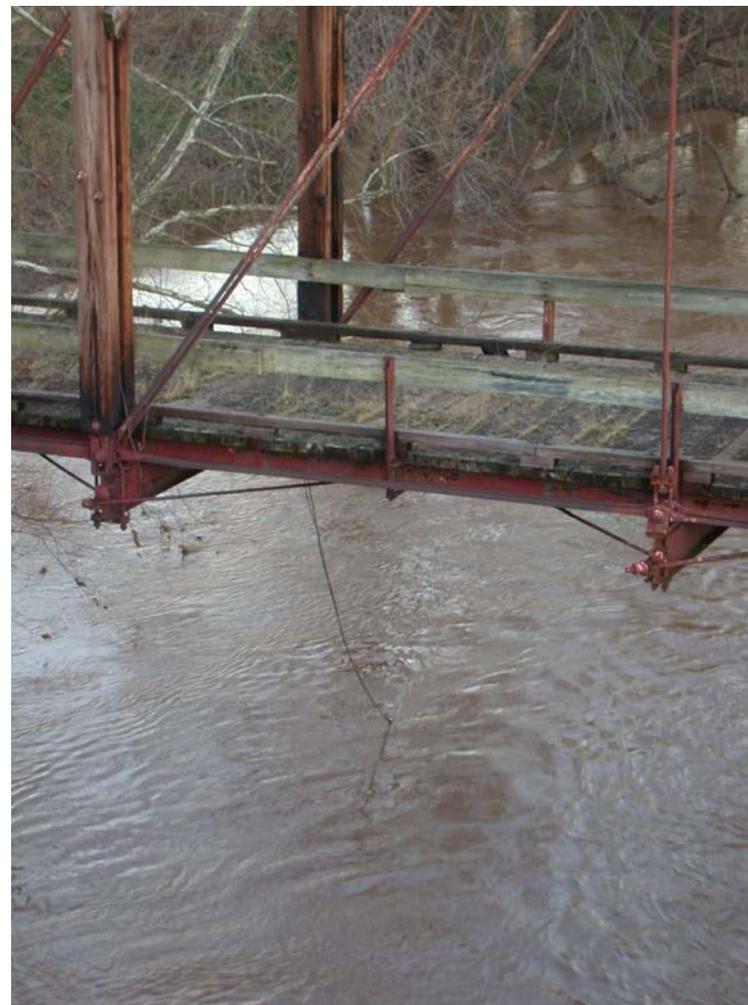


**Sensors**

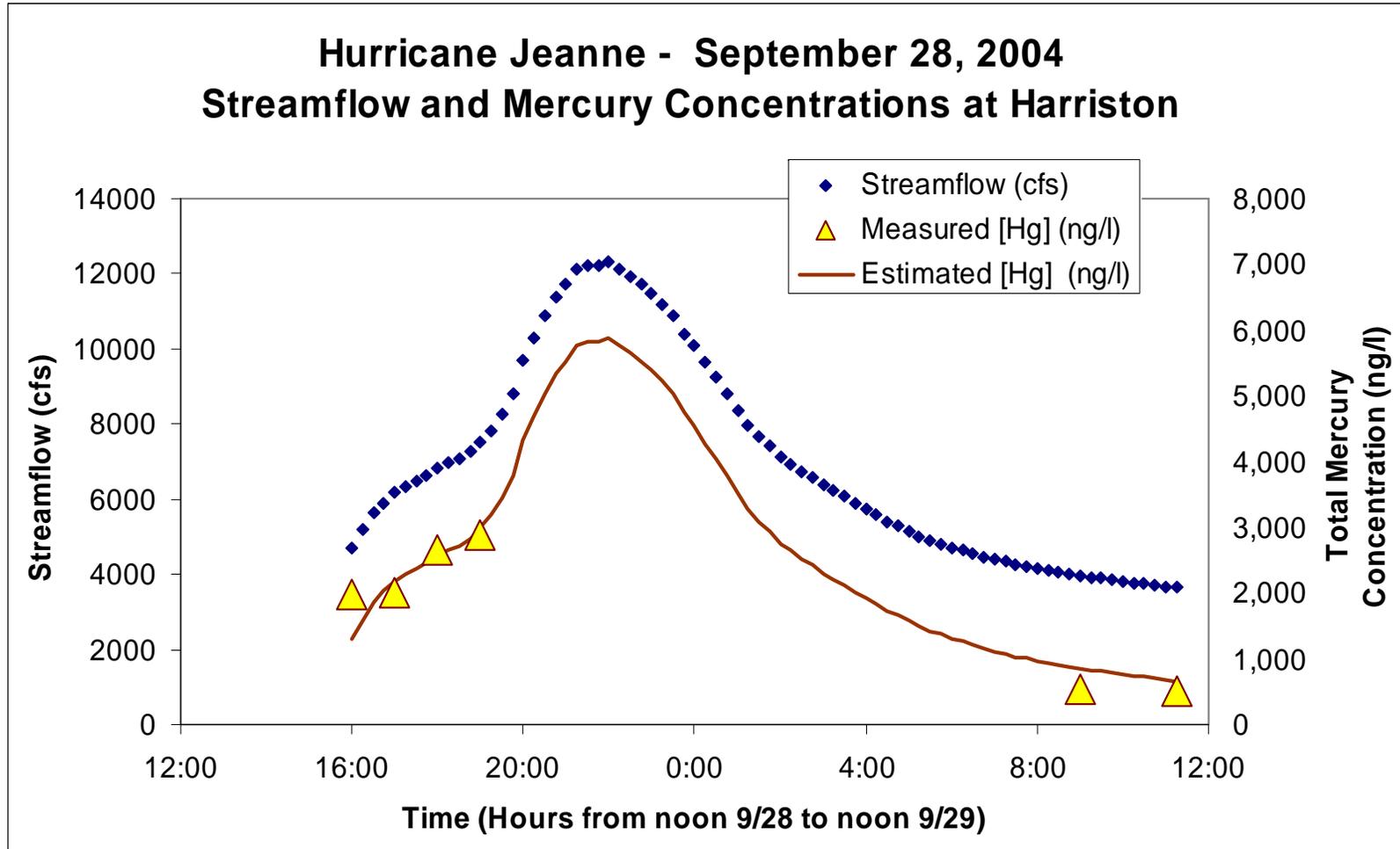
**Out of Water**



**In the James River at Cartersville**



# Mercury Loading Rate – Example Calculation



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

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