

# Quantification of MeHg Fluctuations in the Provo River over a 24 hour cycle



## River over a 24 hour cycle

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### Goal

Contribute to the understanding of the variability of MeHg concentrations in the Provo River based on time of day during high flow.

### Soapstone Basin: Provo River Study Area

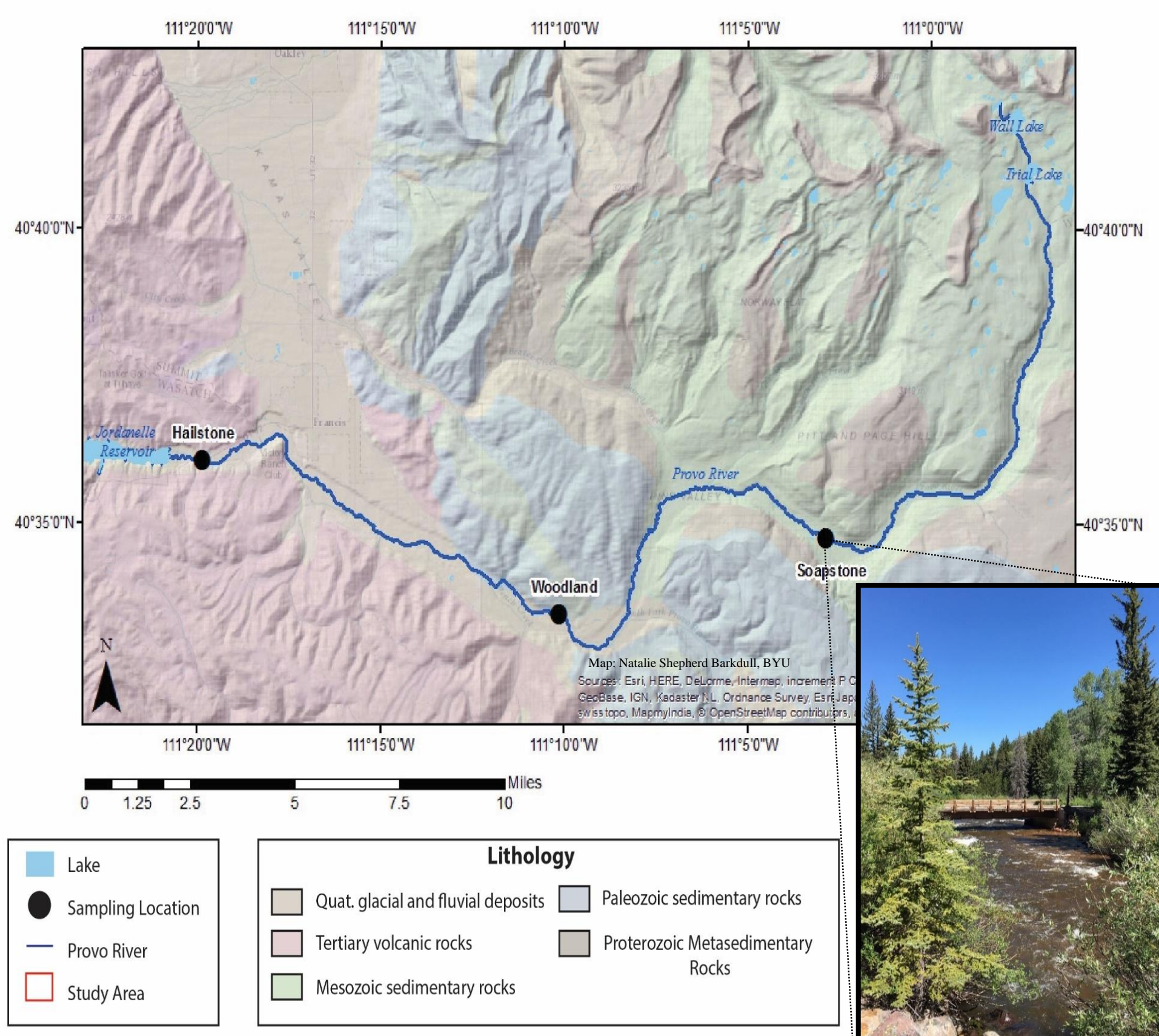
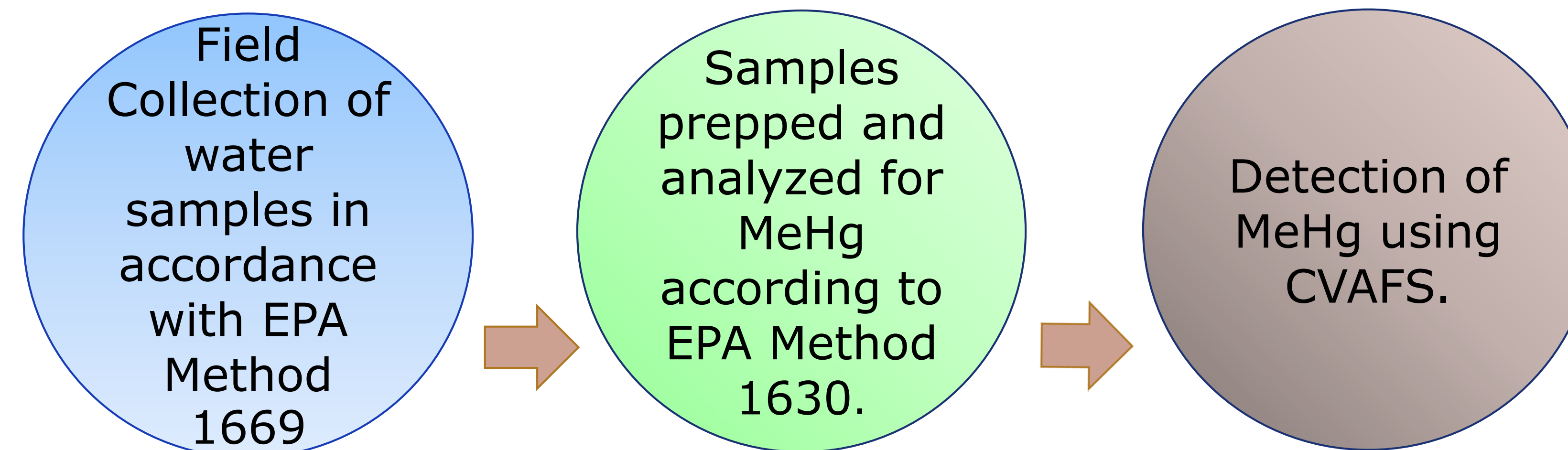


Figure 1. The Provo River at Soapstone Basin in the Uinta Mountains.

### Research



EPA. (1996). Method 1669: *Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*. U.S. Environmental Protection Agency, Office of Water Engineering and Analysis, Washington, D.C. EPA. (2001). *Methyl Mercury in Water by Distillation, Aqueous Ethylation, Purge and Trap, and CVAFS*. Department of Water, Washington, D.C. EPA. (2002). Method 1631, Revision E: *Mercury in Water by Oxidization, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry*. U.S. Environmental Protection Agency, Office of Water Engineering and Analysis, Washington, D.C.

### Methods

- Collect river samples over a 24 hour period near the iUTAH Soapstone basic aquatic station.
- Analyze fluctuations and levels of methylmercury (MeHg).

### Why it Matters

- In aquatic ecosystems, Hg converts to methylmercury (MeHg), a potent bioaccumulative neurotoxin, that humans are exposed to from the consumption of contaminated fish.
- A mercury advisory for fish along the Provo River, has created a need for the river analysis.

### Results of MeHg Analysis

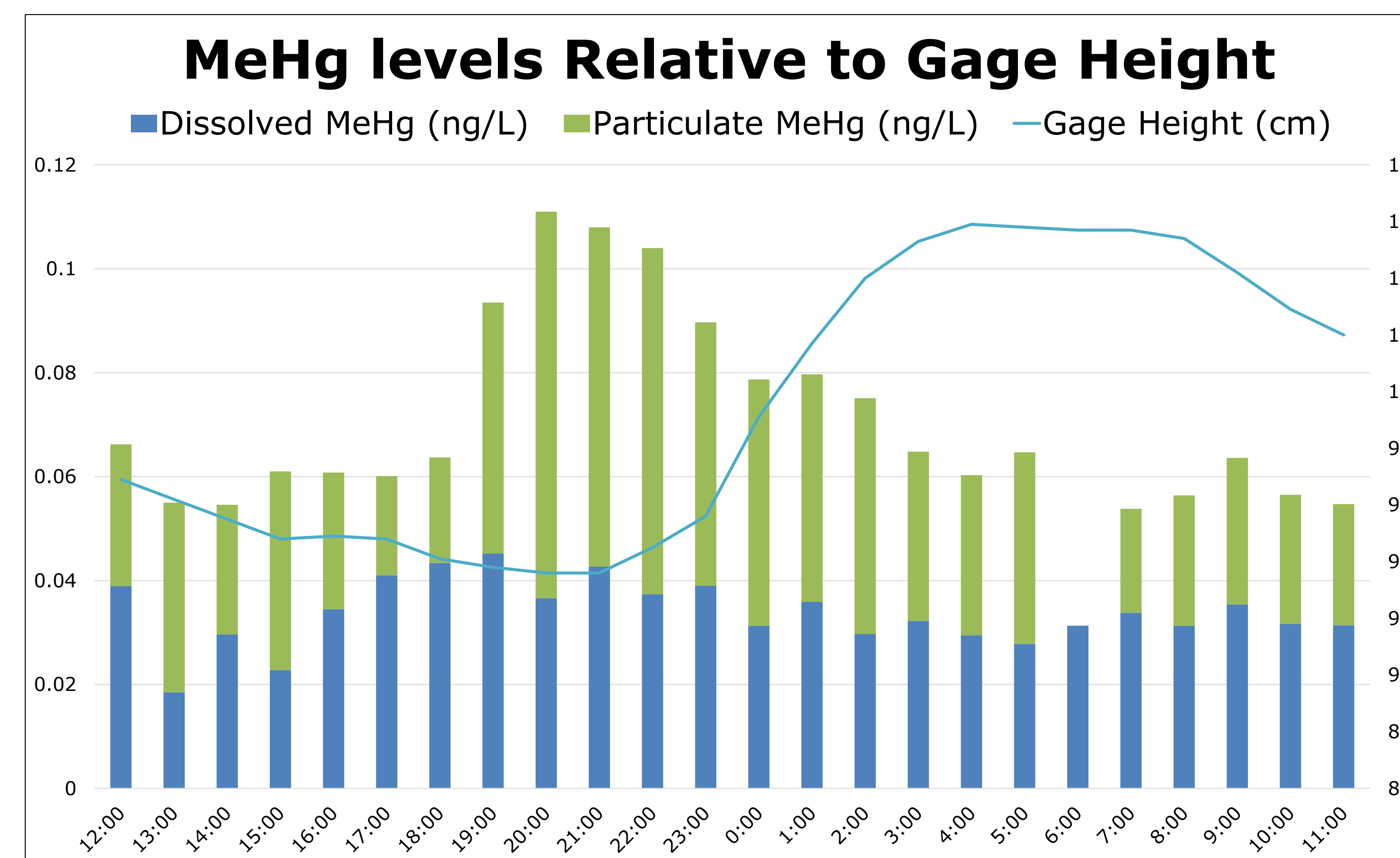


Figure 2. Shows the inverse relationship between MeHg and gage height. Dissolved MeHg basement level was 0.0185 ng/L and peak level was 0.0452 ng/L. Particulate MeHg basement level was 0.0191 ng/L and peak level was 0.0744 ng/L.

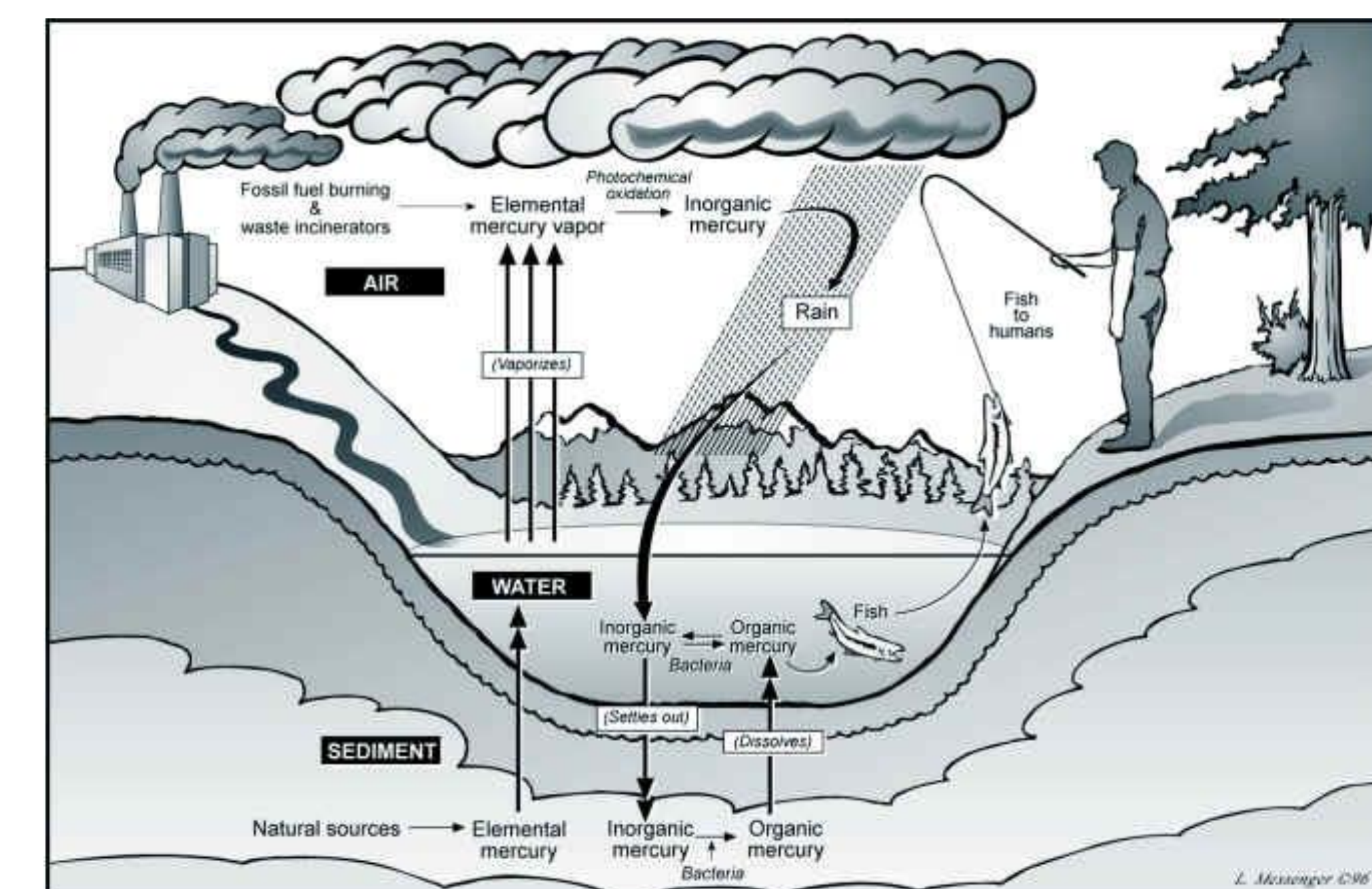


Figure 3. Anthropogenic emissions have spiked natural mercury levels in the biogeochemical cycle.

### iFELLOWS UNDERGRADUATE RESEARCH PROGRAM



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