

# Investigating temporal and spatial variations of MeHg and total Hg loading to Utah Lake

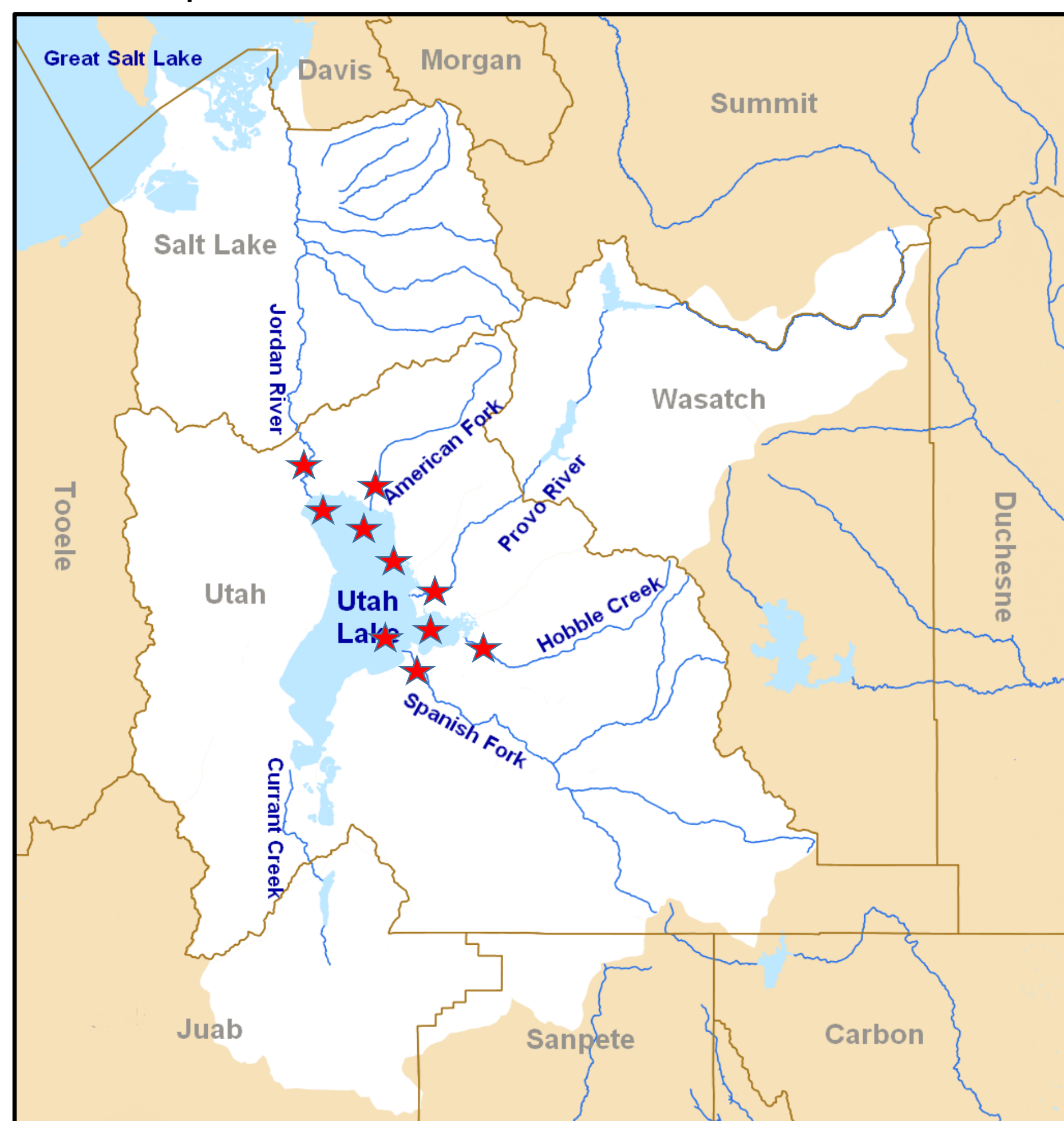
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## Goals

- Quantify seasonal fluctuations of mercury and methylmercury levels in sediment from the inflow rivers of Utah lake and the Jordan River
- Contribute to the understanding of the variability of Hg and MeHg concentration based on location.
- Understand Utah County's Hg cycle
- Contribute to the development of a nutrient and trace metal budget for Utah Lake

Sample Locations on Utah Lake and Rivers

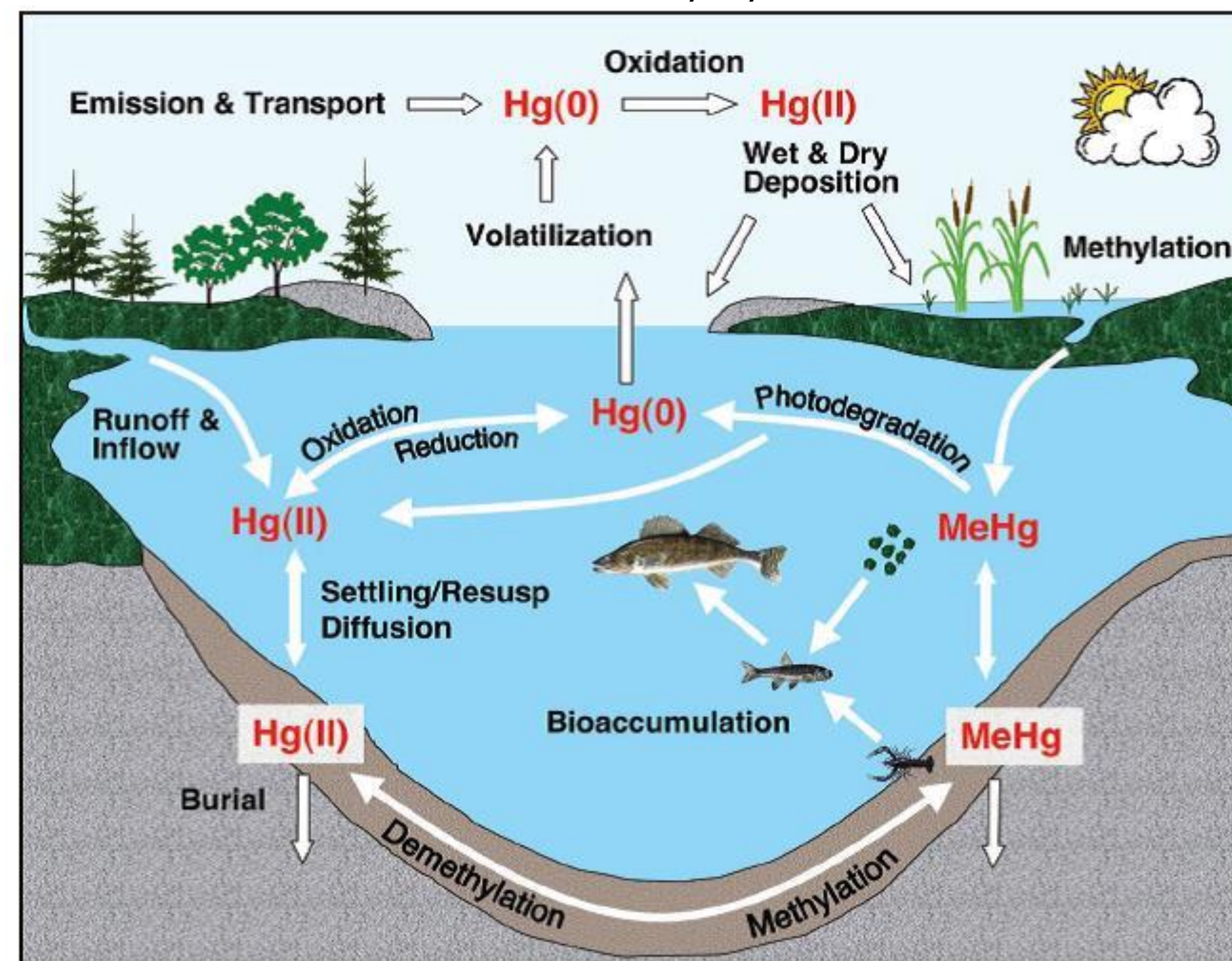


[https://en.wikipedia.org/wiki/Jordan\\_River\\_\(Utah\)](https://en.wikipedia.org/wiki/Jordan_River_(Utah))

## Research Methods

- At each site, sediment samples will be stored in plastic bags and placed on top of ice in the cooler
- Mercury analysis will be done on a subsample from the homogenized samples
- Total Hg involves cold aqua regia and BrCl oxidation
- EPA method 1631 (cold aqua regia) used for THg
- MeHg extraction from soil involves leaching with  $KBr, H_2SO_4, CuSO_4$  then extraction into  $CH_2Cl_2$  (methylene chloride). Followed by back-extraction into water
- The extracted sample is analyzed using EPA method 1630

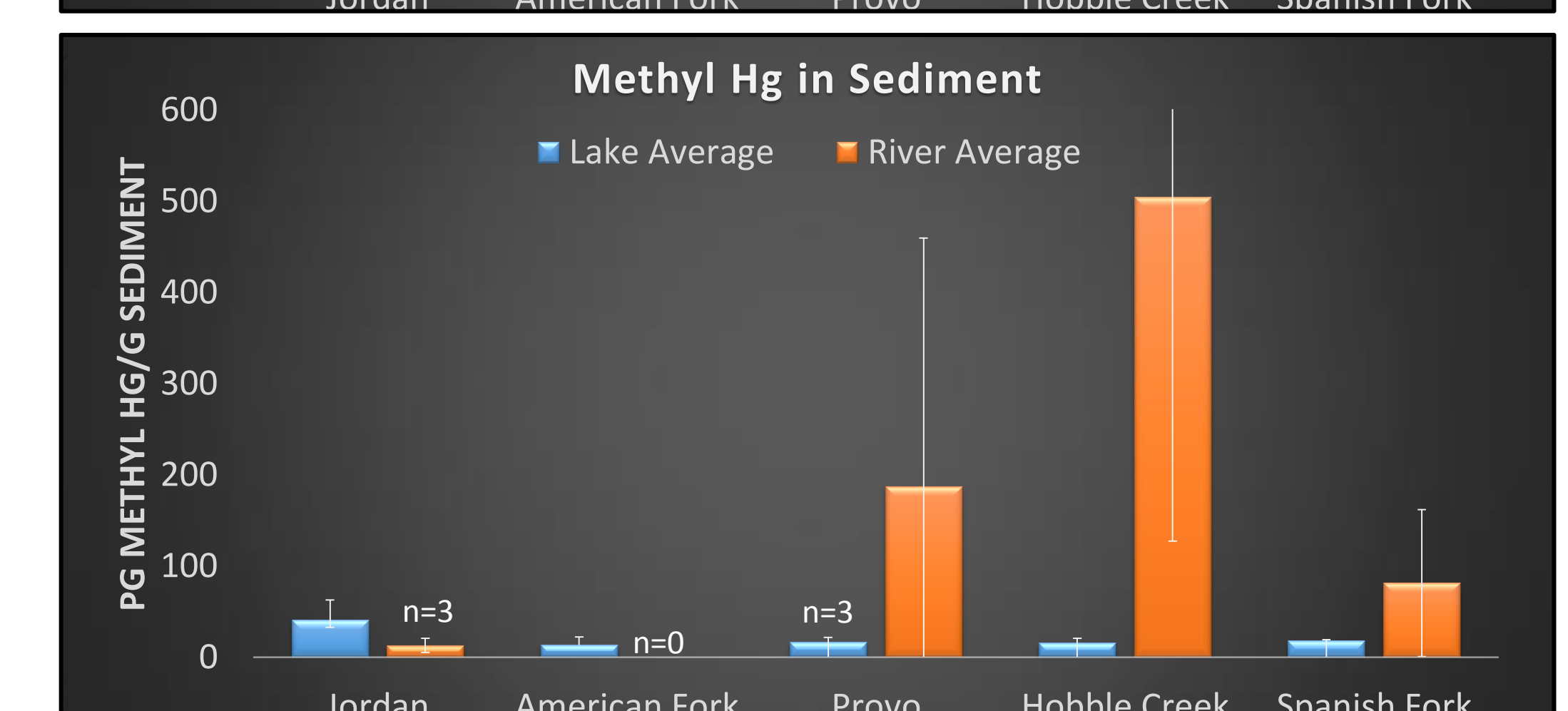
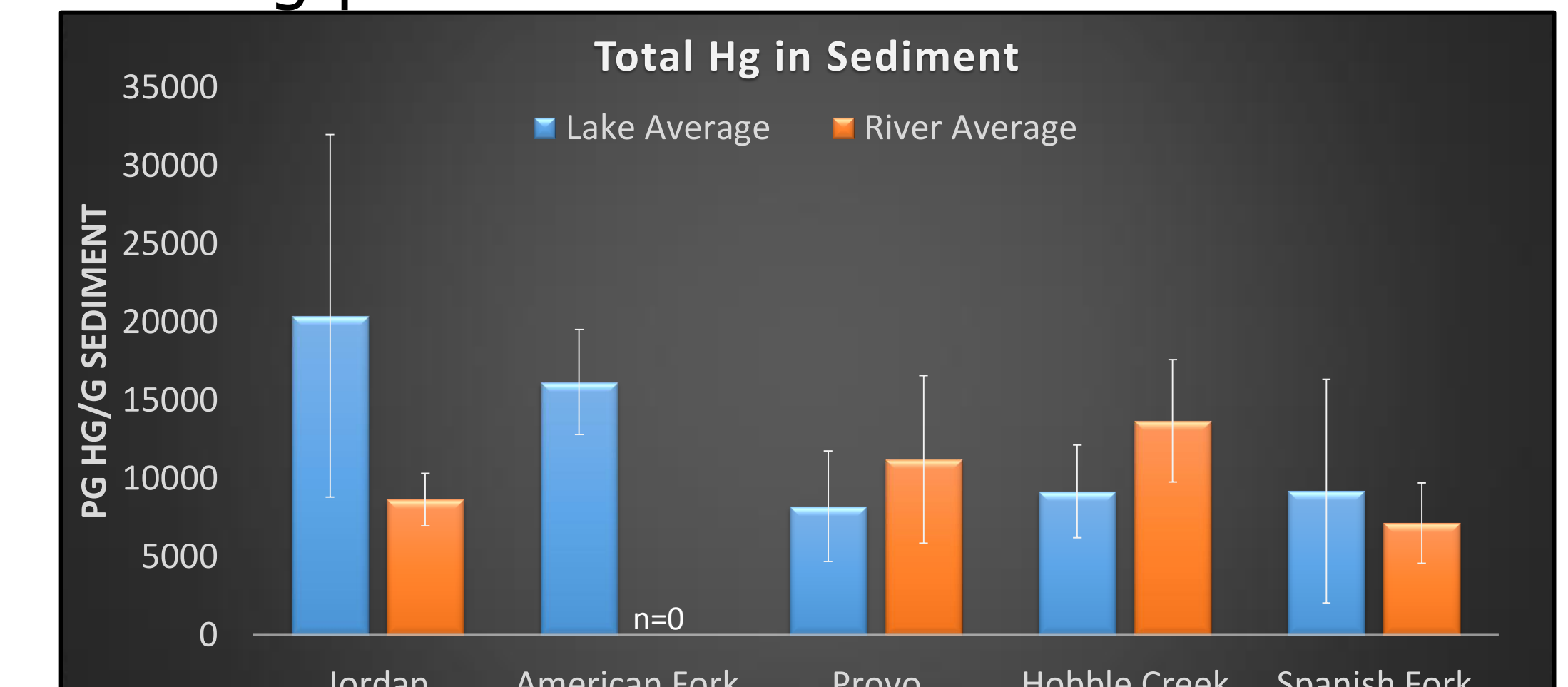
The Mercury Cycle



<https://11and4th.wordpress.com/2013/11/14>

## Results

- Hg is present in all samples analyzed
- Although there is mercury present, the level does not seem to contribute to the production of MeHg
- There is strong reason to believe Hobbie Creek is favorable for the production of MeHg
- More samples must be analyzed to improve variability
- More research is needed to understand why Hobbie Creek is so favorable for MeHg production



Average total Hg and methyl Hg concentrations in lake and river samples (n = 4 unless otherwise noted)



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