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

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 analysis involves cold aqua regia and BrCl oxidation
• EPA method 1631 (cold aqua regia) used for THg
• MeHg extraction from soil involves leaching with KBr, H₂SO₄, CuSO₄ then extraction into CH₂Cl₂ (methylene chloride). Followed by back-extraction into water
• The extracted sample is analyzed using EPA method 1630

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 Hobble Creek is favorable for the production of MeHg
• More samples must be analyzed to improve variability
• More research is needed to understand why Hobble Creek is so favorable for MeHg production

The Mercury Cycle

Sample Locations on Utah Lake and Rivers

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

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