

UNIVERSITY OF UTAH BIOGEOSCIENCE SEMINAR

~ COURSE SEMINAR ~

DAVID NAFTZ

US Geological Survey

“Loading and biogeochemical cycling of mercury in the open water and perimeter wetlands of Great Salt Lake, Utah”

Description: The adjacent wetlands and open water of the Great Salt Lake (GSL) ecosystem support millions of migratory waterfowl from throughout the Western Hemisphere and a multi-million dollar brine shrimp industry. Recent biogeochemical assessments of the GSL ecosystem have found elevated levels of CH_3Hg in water samples and $\text{Hg}_{(\text{total})}$ in three duck species that consistently exceed the USEPA screening level for human consumption. Modeled riverine Hg load to GSL is 6 kg/yr. The 192,000 hectares of wetlands surrounding GSL likely play a key role in the transformation of inorganic Hg to the significantly more toxic CH_3Hg species in the riverine inflow. Changes in CH_3Hg concentration and loads in water discharging from a wetland adjacent to GSL were monitored over a 24-hour interval during July 2008. The large fluctuations observed in CH_3Hg concentration over this period can have significant implications when estimating its production and mass export from the large expanse of wetlands surrounding GSL. Large concentrations of CH_3Hg are also observed in the open water of GSL. Separation of GSL into two distinct hydrologic and geochemical systems from the construction of a railroad causeway has created a persistent and widespread anoxic layer in GSL. This anoxic layer has high Hg methylation capacities.

Research Interests & Background: Dave has worked for the USGS for 26 years on various applied research projects in the western United States including Se and U contamination, paleoenvironmental reconstruction using ice and lake cores, biogeochemistry of saline lakes, and the application of passive technologies for groundwater and wetland remediation

April 6, 2009

4:00-5:00 p.m.

210 Aline Skaggs Biology Building

Instructor: Dave Bowling, 581-2130