



## FORESTRY, FIRE & STATE LANDS REQUEST FOR PROPOSALS Cover Sheet



<b>Project Title</b>	Characterizing mercury and salinity dynamics at the railroad causeway breach of Great Salt Lake with in situ measurements		
<b>Lead Project Sponsor</b>	Brigham Young University		
<b>Project Contact</b>	Dr. Greg Carling		
	Mailing address: Department of Geological Sciences, Brigham Young University, S389 ESC, Provo, Utah 84602		
	Phone: 801-422-2622		
	Fax: 801-422-0267		
	Email: <a href="mailto:greg.carling@byu.edu">greg.carling@byu.edu</a>		
<b>Project Description / Abstract</b>	<p>The proposed modifications to the railroad causeway on Great Salt Lake (GSL) could potentially alter mercury concentrations, salinity, and the extent of the deep brine layer (DBL) in Gilbert Bay. High frequency monitoring is needed to characterize the complex flow dynamics at the causeway breach, but measurements are difficult due to the harsh environment of GSL. <b>This proposal presents a new method for quantifying loads of mercury and salinity at the railroad causeway breach with high resolution in situ measurements.</b> The proposed work addresses four of the eight hot topics, including mercury transport, salinity balance, deep brine layer, and the effects of causeway modification. Project objectives are to: (1) monitor fluorescent dissolved organic matter (fDOM), turbidity, and specific conductance at 15-min intervals using a water quality sonde; (2) collect discrete water samples for measurements of mercury species (total and methyl mercury) and major ions; and (3) develop regression models between sonde measurements and mercury species/major ions; and (4) use existing flow data to provide loading estimates of total mercury, methyl mercury, and salinity at the railroad causeway breach site. Monitoring events will target normal flow and flow reversal events at the breach. Ultimately, this sampling design could be expanded to allow for high frequency monitoring of mercury and salt dynamics across GSL.</p>		
<b>Project Funding</b>	Amount Requested	Matching Funds	Total Project Cost
	\$ 48,872	\$ 20,152	\$69,024