

Christine Rumsey  
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### **Education & Experience**

Christine Rumsey graduated with an undergraduate degree in Civil and Environmental Engineering from the University of Wyoming in spring 2010. After a few years working in environmental consulting as an environmental engineer, Christine returned to graduate school in 2011 to earn her Master of Science degree in Civil and Environmental Engineering at Utah State University in 2014, focusing on aquatic chemistry and the transport of nutrients in shallow aquifers.

In 2014, Christine joined the United States Geological Survey (USGS) as a hydrologist at the Utah Water Science Center in Salt Lake City, Utah, USA. Since joining the USGS, she has contributed to water quality monitoring and research on the Great Salt Lake, focusing on research questions related to its water chemistry, nutrient cycling, and salt cycling. In addition to her Great Salt Lake efforts, Christine has also been heavily involved and led research initiatives to better understand salinity transport, water quality trends, drivers of change, and salinization in freshwater systems such as the Upper Colorado River Basin and the Delaware River Basin (see publications list).

Her most recent initiative at the USGS focuses on expanding research at Great Salt Lake to other terminal and saline lake ecosystems throughout the Great Basin of the western United States as part of a multidisciplinary team implementing the Saline Lake Ecosystems in the Great Basin States Program Act passed by Congress in December 2022. Christine's role in this initiative focuses on leading efforts to measure salinity gradients and water chemistry in terminal lakes across four U.S. states, including lakes such as Lake Abert, Summer Lake, Carson Sink, Mono Lake, Ruby Lake, and Great Salt Lake. Regional scale water chemistry monitoring is ongoing and will help inform how salinity and water chemistry affect migratory birds and other wildlife who rely on the network of terminal lakes in the western U.S.

Christine began a PhD program in the fall of 2023 in the Geology and Geophysics department of the University of Utah in Salt Lake City, UT. One focus of her PhD is to investigate salt cycling processes and mechanisms across diverse terminal lake ecosystems in the western U.S. Another focus will be to understand how varying sediment and water chemistry affect invertebrate and plant seed production for birds. And lastly, she is developing novel ways to map water quality gradients at dense spatial scales to understand hydrologic inputs and water chemistry evolution across diverse micro-environments in saline and terminal lake ecosystems.

Overall, Christine's research employs field monitoring, observations, and statistical modelling. Currently she is interested in how salinity and nutrients affect saline and terminal lake ecology, and how changes in water budgets to terminal lakes will cascade through the ecosystem to affect migratory birds and other wildlife.

### **Select Publications**

Rumsey, C.A., J.C. Hammond, J.M. Murphy, M. Shoda, and A. Soroka (2023), Spatial patterns and seasonal timing of increasing riverine specific conductance from 1998 to 2018 suggest legacy contamination in the Delaware River Basin, *Science of The Total Environment*, 858(1): 159691.

Rumsey, C.A., O. Miller, R.M. Hirsch, T.M. Marston, and D.D. Susong (2021), Substantial declines in salinity observed across the Upper Colorado River Basin during the 20th century, 1929 to 2019, *Water Resources Research*, 57, e2020WR028581.

Rumsey, C.A., M.P. Miller, and G.A. Sextstone (2020), Relating hydroclimatic change to streamflow, baseflow, and hydrologic partitioning in the Upper Rio Grande Basin, 1980 to 2015, *Journal of Hydrology*, 584: 124715.

Rumsey, C.A., M.P. Miller, G.E. Schwarz, R.M. Hirsch, and D.D. Susong (2017), The role of baseflow in dissolved-solids delivery to streams in the Upper Colorado River Basin, *Hydrological Processes*, 31: 4705-4718.

Rumsey, C.A., M.P. Miller, D.D. Susong, F.D. Tillman, and D.W. Anning (2015), Regional scale estimates of baseflow and factors influencing baseflow in the Upper Colorado River Basin, *Journal of Hydrology: Regional Studies*, 4: 91-107.

**Candidate's Statement**

I have been involved in salt lake research for more than ten years and over that time have conducted research across lakes in the western US and Argentina. My first experience with ISSLR was to attend the 15<sup>th</sup> ISSLR in Antalya, Turkey this past November. I appreciated the opportunity to learn about the unique characteristics and challenges of saline lakes around the world via diverse scientific disciplines. The ability to share experiences and expertise serves to further our understanding of these systems, and ultimately will help to inform conservation and management strategies to preserve them. I would enjoy the opportunity to join the board and contribute to ISSLR efforts, which I see as critical for advancing our understanding of saline lakes and finding solutions for their management and conservation.