

Inventory and geochemical evaluation of groundwater springs and streams in San Diego County; upper Sweetwater watershed

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San Diego's hydrologic system contains a multitude of watersheds, such as the Peñasquitos, San Diego River, Pueblo, Sweetwater, and Otay. This project includes the inventory and geochemical evaluation of groundwater springs and streams within Cuyamaca Rancho State Park in the upper Sweetwater watershed. The Sweetwater watershed flows southwest for 55 miles and covers 230 sq. miles from Upper Green Valley in the semi-arid Cuyamaca Mountains to Mission Bay, where it enters the Pacific Ocean. The objective is to analyze whether the groundwater springs in the upper region of the Sweetwater watershed show similar patterns of flow and geochemistry due to their respective geology. This study focuses on seven locations: Deer Spring, Cold Spring, Azalea Spring, Japacha Spring, Dyar Spring, Granite Spring, and Green Valley Falls. The geology of these sites encompasses the Cuyamaca Gabbro, Chiquito Monzogranite, Quartz Diorite of East Mesa, the Monzogranite of Pine Valley, and the Gneiss of Harper Creek. Several variables will be analyzed in this study via field and lab work. The analysis of these representative samples will illustrate how water quality functions relative to rock weathering in the carbon cycle in which precipitation interacts with the underlying geology.