

Guardians of the River

By Chase Stafford

For thousands of years, the San Diego River has been the lifeline for generations of plants, wildlife, and us, humans. Dating back from perhaps 10,000 years or more, the River has been a prosperous, fertile, and sacred waterway to the many people who have come in contact with it. Attracted by its vitality and the fruitfulness of its resources, a vast number of plant and animal species also have come to call the San Diego River home, making it one of the richest biologically diverse regions in the world.

In recent years, the San Diego River has been threatened by industrial run off, pollution in tributaries, and human influenced waste. Amongst the pollutants, human waste has emerged as a toxic contributor to poor water quality of the Lower San Diego River. Leakage from sewer pipes and septic tanks, as well as human waste from encampments along the River, appears to have degraded the River's water quality and aquatic habitat. Human waste directly affects the amount of nutrients in the water, resulting in algae blooms, and creating pathogenic bacterial diseases transmittable to humans.

The San Diego Regional Water Board (SDRWB) has been monitoring the water quality along the Lower San Diego River using a human fecal matter indicator called HF-183. HF-183 indicates the amount of human fecal bacteria that is present in the water. The SDRWB has issued an Investigative Order to ten public agencies suspected of discharging human fecal waste into the Lower San Diego River and ordered them to "investigate and identify the source of harmful material and report the extent of their involvement to the San Diego Water Board." Our CEO, Rob Hutsel, is on the Steering Committee for this major endeavor.



Photo taken by a volunteer of Cedar Creek Falls while collecting samples

With threats of the Lower San Diego River under study, the question now arises about the state of the Upper San Diego River. Less research has been done within the streams and waterways in the Upper San Diego River Watershed. Local swim holes and outdoor recreational areas nestled within the headwaters are being used by visitors more frequently. It is important that these headwaters are healthy and pure for recreational purposes, for endangered or threaten

species who may inhabit the streams, and for the functionality of the San Diego River as a whole.

The headwater streams of any river play a foundational role in the overall integrity of the watershed and have a major influence on the water downstream. The health of a river relies on an intact, pristine network of headwater streams. These streams ultimately can be the dominant resource of water, nutrients, transportation of sediment, and organisms for a river and a vital contributor to the quality of the water. Any threats to the chemical, biological and/or physical conditions of streams can be perilous to the foundation of the overall river system. It is crucially important that as the water flows through the headwater stream before reaching El Capitan Reservoir, it is clean and provides suitable habitat for special species like the California newt, Western pond turtle, and rainbow trout.

In partnership with the San Diego Regional Water Board, the San Diego River Park Foundation is conducting water monitoring of HF-183 and caffeine at highly visited swimming holes located in upper headwaters of the San Diego Watershed. Along with HF-183, caffeine is an emerging contaminant in freshwater streams and waterways. Caffeine is not naturally found in the terrestrial freshwater ecosystems outside of tropical environments. Presumably, with the large consumption of coffee, traces of caffeine are finding their way into the water due to urination along the trails and streams. The caffeine adversely affects the respiration and function of microorganisms who serve as the building blocks for the aquatic food chain within the ecosystem.



Three Sisters Falls, Cedar Creek Falls, and upstream of Boulder Creek were the targeted locations to collect water samples due to the high frequency of visitation in the summer months. Our team of staff and inspiring volunteers, have set out to see if the HF-183 and/or caffeine is present in these waters during high usage times. According to the data we have collected so far, there is good news! So far there is not a concerning amount of HF-183 and caffeine found in the samples. As we collect and analyze more data, we will have a better comprehension of how threatening HF-183 and caffeine are to the overall health, habitats, and species of Upper San Diego River.

The study is significant as it helps to bridge the gap of our overall understanding about the quality of the water and health of the streams and tributaries in the upper San Diego River Watershed. Beginning as streams and tributaries high in the headwaters, making its way through staggering gorges, and finally reaching El Capitan Reservoir, the San Diego River is the lifeline and heartbeat of this area. Lessons learned can be applied to the lower portion of the River. If you are interested in getting involved with ongoing monitoring project in the

headwaters of the San Diego River, please contact our Field Coordinator, Chase Stafford, at (619)-297-7380 ext.111 or chase@sandiegoriver.org.