# Water Quality Monitoring and Other Projects at Inland Empire Waterkeeper

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Acknowledgements

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## Executive Summary

I worked on several projects throughout my internship at Inland Empire Waterkeeper (IEWK). Primarily, I worked as a stream team member where I would collect water samples, test, record, and report the results to the swim guide app on a weekly. In addition to water monitoring, I had the opportunity to work on grants and outreach material for Clean Camp Coalition(CCC) and the education programs offered at IEWK. During the summer, I assisted in preparing, planning, and teaching nature-based learning lessons for their summer education program. I was also involved in writing up the quality assurance project plan (QAPP) as well as working with US Fish & Wildlife on habitat protection and surveying for the Santa Ana Suckerfish.

## Project Objectives

Through IEWK, I learned quite a bit on water quality standards that will help in my future career path. Since IEWK is a small nonprofit, there were many projects that I was able to work on. The main project that I worked on was water monitoring for the Upper Santa Ana River. The purpose of this project is to collect useable data on the water quality at four different site locations to determine whether the site along the river is currently meeting regulatory requirements. All the data we gather are critical to understanding the water quality since each aspect has the potential to adversely affect the beneficial uses of the waters that receive them. My goal for the Santa Ana River Watershed water quality assessment project was to learn about water quality and the methods used to determine and analyze water quality.

In addition to water quality monitoring, I also taught my own class for two Rivercamp sessions, which connects young students with nature while learning about important concepts in ecology and earth science through hands-on activities. I also created science activities, assisted in marketing, organizing activities, and setting up. This summer I had the opportunity to instill better environmental stewards in young children. Another task that I was involved in was writing grants to fund various projects such as the CCC. CCC is a project aimed to help reduce pollution from disadvantaged communities who are currently homeless and living in the Santa Ana Watershed. I also worked on their preparing for their annual Wild and Scenic Film Festival.

## Project Approach

For water quality monitoring, we have four test sites that we go and monitor weekly. At each site, we collect some basic field parameters in addition to acquiring a water sample. Once we collect each sample, we place it in an iced container to keep it cold between each site location (See Appendix A for site location). We collected data on air temperature, water temperature, pH, and dissolved oxygen on site (See Appendix B for the equipment used for fielding testing). After collecting all the samples, we head back to the laboratory to test for total coliform and E-coli. We used Quanti trays to test the water samples for bacteria. After sealing the Quanti tray, we have it incubated for 24 hours at a constant 35°C. After the T-coliform and E-coli are done incubating, we record any small or large yellow wells. Next, I place it under a UV lamp to identify any positive small and large wells (See Appendix C for example of positive wells). With the remaining water samples, we test for nitrate, phosphate, ammonia, manganese, and copper levels. These parameters are important in examining water quality. The results for these parameters tested in the laboratory takes from one to ten minutes to read.

In the spring, I worked with US Fish & Wildlife in habitat protection and surveying for the Santa Ana Suckerfish. I was trained to recognize and identify larval Santa Ana Suckers and the quantity and quality of habitat. Along with water monitoring and habitat protection and surveying, I was involved with the planning and teaching of their upcoming summer education program, Rivercamp. I was responsible for creating fun and creative activities to teach and instill a love for their watershed while exploring the Santa Ana River. Rivercamp allowed me to see how important program like these are to young children and the influence it has on the community. After Rivercamp, I helped with planning for their annual Wild and Scenic Film Festival, which is their main fundraising event.

## Project Outcomes

This internship taught me so much about water quality and water politics. I learned how big a role the river plays in the community after seeing how concerned the community was with part of the Santa Ana River being on fire. The river symbolizes a connection to nature and the surrounding environment. US Fish & Wildlife taught me about the balance needed to sustain an entire ecosystem and keeping our rivers clean.

Compared to other projects, Rivercamp gave me the opportunity to hone my leadership skills by communicating with parents, staff, and children and leading teams to work together. Since IEWK is a small non-profit, I was able to see all the little things that go into running an organization like this. I was able to get hands-on experience with writing grants, marketing outreach events, assisting with newsletters, and organizing events. Working at this internship allowed me to work on more projects than I would normally be able to in a large organization.

## Conclusions

There were many things that I learned that I would overwise not have been able to experience in a school setting. Working on various projects enabled me to experience numerous aspects of working in an organization. These skills that I have learned here taught me a lot about working in a real-world environment. I am very grateful to have had this experience and will continue to use what I have learned on my path to becoming an environmental engineer.

Appendix

A. Three of the site location for water testing

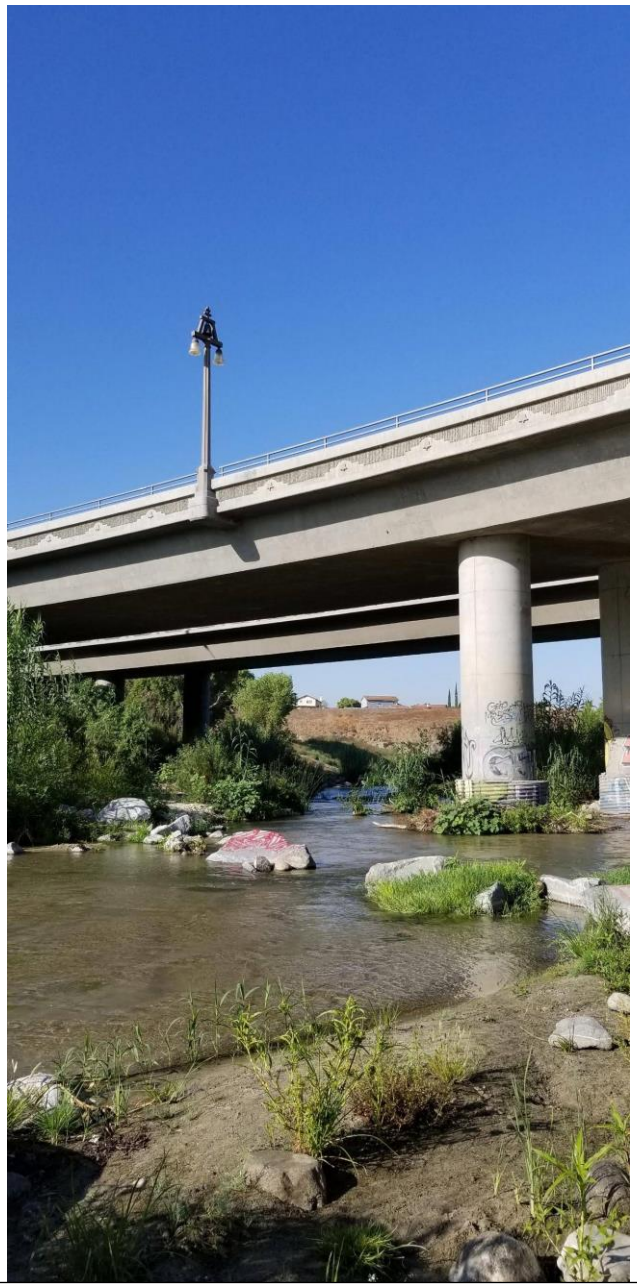

Image of Van Buren Site location.

Limonite site location- Taking water sample

Rialto site location

B.Image of equipment used for fielding testing


C. Image of two positive large wells in bacteria reading