



Overview of Projects at Waterkeeper

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UC Riverside | 2018-19 school year

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Acknowledgements

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I would like to thank the Inland Empire Waterkeeper staff for the knowledge and opportunities they gave me during this internship.

Executive Summary

At Inland Empire Waterkeeper (IEWK) I was given so many opportunities and got to work on various projects throughout my internship. I was eventually deemed stream team leader and was responsible for water collecting, testing, and recording results every week as well as analyzing them. I have collaborated on request for proposals (RFP) and worked solely on a quality assurance project plan (QAPP), environmental impact report (EIR) response letters, event planning, and helped to manage educational programs. Clean Camp Coalition (CCC) was one of the main projects I worked on at IEWK, it is a project designed to reduce the pollution from disadvantaged communities experiencing homelessness in the Santa Ana Watershed. I was also involved in habitat protection and surveying with CA Fish and Wildlife for the Santa Ana suckerfish. Overall, my time at IEWK was highly beneficial towards me and the disadvantaged communities on the other end of the projects I was fortunate enough to work on.

Project Objectives

My internship at IEWK was very rewarding because of the fact that it is a smaller organization. I was involved in almost every project that came and went from the office during the 2018-19 schoolyear. Initially, I knew I was going to be involved in water testing every week and their CCC project but I never imagined I would get to lead their testing team as well as work on almost all of the major events happening in the watershed and the correspondence that comes with it. Figure 1 shows one of my first times testing water in the field. As time passed during my internship, the staff at IEWK started giving me more important work for the organization and I'm grateful that they trusted me with that responsibility. I have learned so much about the watershed, and I've also learned how to be a teacher and a leader through this internship.



Figure 1. Testing the Rialto Channel

Project Approach

Initially I was testing water at four different sites once a week for the following results:

- Bacteria
 - E. Coli
 - Total Coliform
- Ammonia
- Nitrate
- Copper
- Manganese
- Phosphate
- Dissolved Oxygen

Figure 2 shows the water samples being incubated for bacteria testing and Figure 3 shows the process of totaling the bacteria count. Figure 4 shows some of the testing process for other parameters.



Figure 2. Incubation

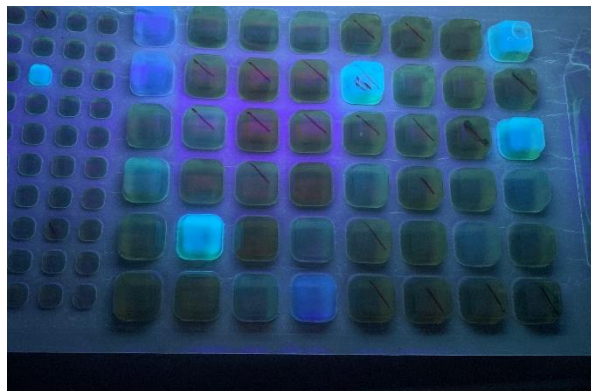


Figure 3. Black Light for Bacteria



Figure 4. Testing for Various Parameters

After testing for a few months, I became stream team leader and was also beginning to be involved in IEWK's upcoming conference, Solving Homelessness in the Watershed. After the conference, I was given more responsibility with CCC and field trip season also started. Helping to conduct field trips was one of the experiences I learned the most from. Teaching K-12 helped me to take on more of a leadership role and it was awesome to see how much of an influence that field trips to the Santa Ana River have on the kids and their learning about the watershed. Another experience that I learned a great deal from was homeless outreach for CCC.

Once field trip season ended, I was in the office more and was assigned the task of writing a QAPP for the water testing portion of my internship. Once that 60 page document was finalized, the end of my internship quickly approached finishing up with event planning for Rivercamp and doing habitat protection and surveying with CA Fish and Wildlife for the Santa Ana sucker.

Project Outcomes

I learned so much about water testing from this internship and it really helped me in school as well. As I'm taking classes like Water Quality Engineering, it was very nice to have some perspective to what I was studying. Arranging for IEWK's conference in January really gave me the chance to step up to the plate and carry out solo tasks and to see the conference play out was a life-changing experience. It was a great opportunity to meet and interact with all of the stakeholders involved in the watershed and to see different groups of people come together and try to find solutions.

IEWK gave me the opportunity to help with most things that a regular intern would not get to touch. I was able to collaborate on RFP's, work on grants with them, I wrote an official EIR response letter, and even wrote a whole QAPP.

When I wasn't in the office or water testing, I was teaching the RiverKATS program, Kid Activism Through Science. I learned a lot from teaching kids in this program and also got to tag along on the professionally led tours. Figure 5 shows the city of Corona's water treatment facility and Figure 6 shows the Prado Wetlands.



Figure 5. Water Treatment Facility



Figure 6. Orange County Prado Wetlands

One of the last things I did was training for CA Fish and Wildlife habitat protection and surveying. I learned about a whole new side to the watershed and how the smallest things can offset its balance.

Conclusions

Overall I learned so much from my internship at IEWK and it was highly beneficial towards my education and growing as a person. I learned plenty of hard and soft skills and am grateful that I was able to be a part of this organization. From working in the watershed to teaching about it, and becoming a leader creating stewards in Riverside County, I am indebted to this experience in moving forward my career as an environmental engineer.