East Fork San Gabriel River: Camp 19 Stream Conditioning Inventory

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Table of Contents

Acknowledgements

I would like to thank Heather Smith, STEM Program Coordinator at RCC, for notifying me about this internship opportunity. Also, Nicole Barnhart and Christina Rodriguez for answering every question I had regarding this internship.

I would like to send a special thank you to the employees of the Angeles National Forest and especially to Kelsha Anderson (Forest Hydrologist), Kathleen Hemeon (Fisheries Tech), and Thomas Coleman (Fisheries Tech) for all of your help and insight.

This project was supported by Hispanic-Serving Institution's Education Program Grant no. 2015-38422- 24058 from the USDA National Institute of Food and Agriculture.

Executive Summary

My summer internship project was based in Camp 19 on the East Fork of the San Gabriel River in the Angeles National Forest. My colleagues and I conducted stream condition inventory (SCI) along a stretch of the stream. We spent a week at Camp 19 collecting data and we were able to determine the health of the stream by comparing it to data collected the previous year, 2016. After the data from 2017 was entered into excel, we created two reports one specifically for 2017 and one comparing 2016 to 2017.

During the course of this internship I also created a checklist for SCI surveying to make sure we had everything we would need for a day out in the field, and I created an updated stream shading template for the months of July and August.

We also spent an entire day collecting turbidity data in the West Fork and East Fork of the San Gabriel River. We learned how to use the turbidity monitor, the Trimble GPS unit, and how to record the data onto specific data sheets.

Project Objectives

The goal for this internship was to conduct stream condition inventory in the East Fork of the San Gabriel River with the help of the fisheries technicians, and ultimately in the San Francisquito Creek with no help needed. The internship got off to a slow

start due to a two week orientation, and our supervisor was often busy and out on fire duty or out in the field conducting other work.

When SCI finally began, we were faced with numerous obstacles. SCI equipment broke and we forgot to pack the backup set, data was collected incorrectly and we had to restart, or equipment malfunctioned and we had to restart. Having to restart felt very much like defeat, but we never let this get to the best of us. The fisheries technicians that guided us through SCI surveying were very helpful and always helped us to efficiently and effectively workout our problems.

By the time SCI at Camp 19 was finished, we had only two weeks left to go before our internship ended and a large amount of data to enter; San Francisquito Creek was out of the question. I had envisioned ending this internship as a master in stream surveying, and although that didn't happen, I still received a good introduction to stream condition inventory. My original goal was to learn what it takes to become a hydrologist and possibly want to pursue a career in this area after completing this internship; however, I still want to explore my options. I hope to earn an internship with an organization focused on protecting the ocean in the near future, compare experiences, and decide which career path best suits me.

Project Approach

The approach for stream surveying in Camp 19 was to work efficiently by applying our knowledge of SCI protocol in the field, while aiming to use little help from the fisheries technicians. Since there were five of us interns, we split ourselves up into a group of two and three. Each day we would conduct different but similar parts of the survey. For example, one group would conduct longitudinal profile pebble count while the other did cross-section pebble counts. However, we all came together to help with long pro and cross section stream reach measurements, because they took the longest to complete. Within the groups one person would record the data while the other would conduct the analysis. Our survey location wasn't very shaded, so we were always watching each other and making sure no one had signs of heat exhaustion or heat stroke. And when it came time to return to the office, we each took turns driving the vehicles.

Project Outcomes

After finishing the stream condition inventory survey on Camp 19 in the East Fork of the San Gabriel River and comparing the data we collected to the previous year, we concluded that the stream had changed from a Pfankuch rating of poor to fair. More specifically, the reach was determined as a Rosgen stream type of C3. These types of streams generally have moderate sensitivity to disturbance, good recovery potential, moderate sediment supply, moderate stream bank erosion potential, and very high vegetation controlling influence. When comparing last years data to this years, the long pro and cross section stream reach measurements changed drastically in some areas (see figures 1-4). The reason for these changes are due to construction on the stream within the past year. There was a slight increase in the percentage of "slow" water (or pools) and a slight decrease of "fast" water (or riffles) in the reach form 2016 to 2017 (see figure 5).

I have learned that stream surveying takes complete focus and a great amount of attention to detail, along with patience. One wrong move can cost you to restart the entire survey and can set you back a few days.

Conclusions

Although our data collection this year may have not been the most accurate due to our brief introduction to SCI protocol before entering the field, the survey was completed to the best of our ability. Our outcomes may have been more accurate if our supervisor was on site and there to offer more guidance. In the future, it would be best to start SCI training for interns as soon as possible and thoroughly practice it out in the field before conducting an actual stream survey.

I now have a good understanding of what it's like to work for the Forest Service, especially as a hydrologist; however, as I mentioned before, I still wish to explore my options.

Appendices

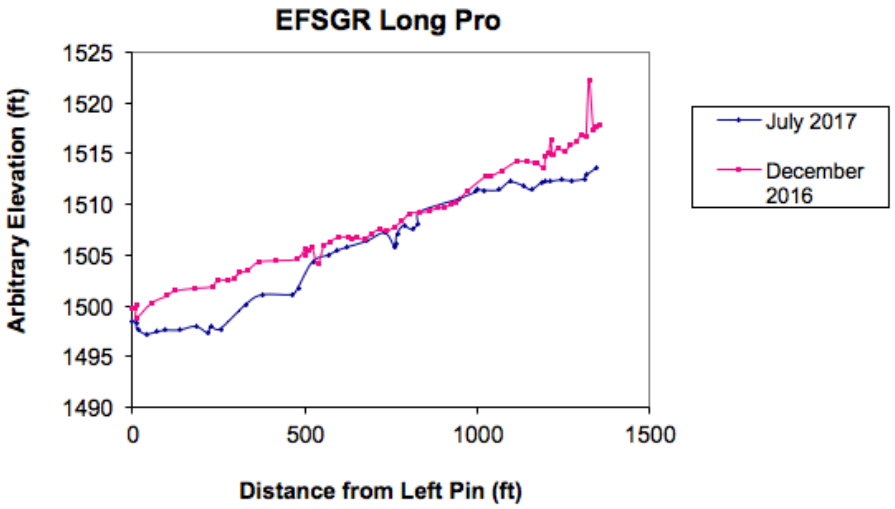

Figure 1. Comparison between longitudinal profiles of the stretch taken in 2016 and 2017.

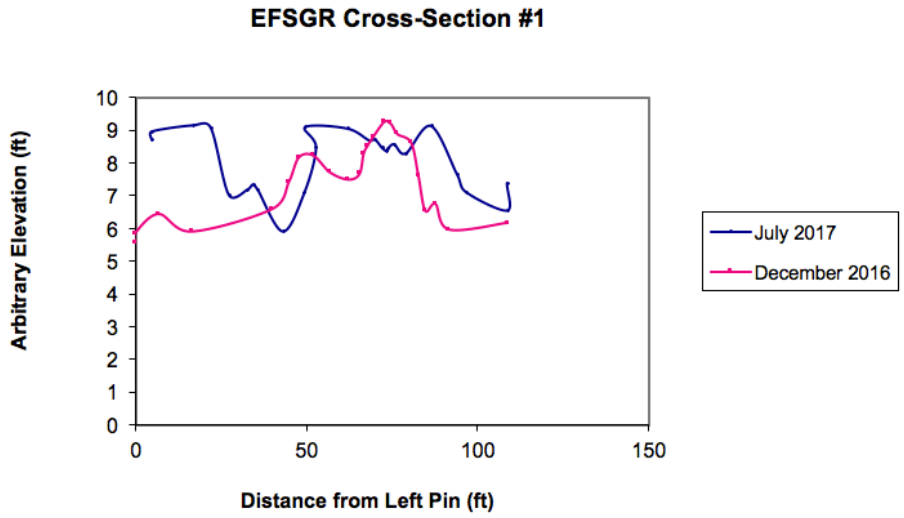

Figure 2. Comparison between cross section #1 from 2016 to 2017.

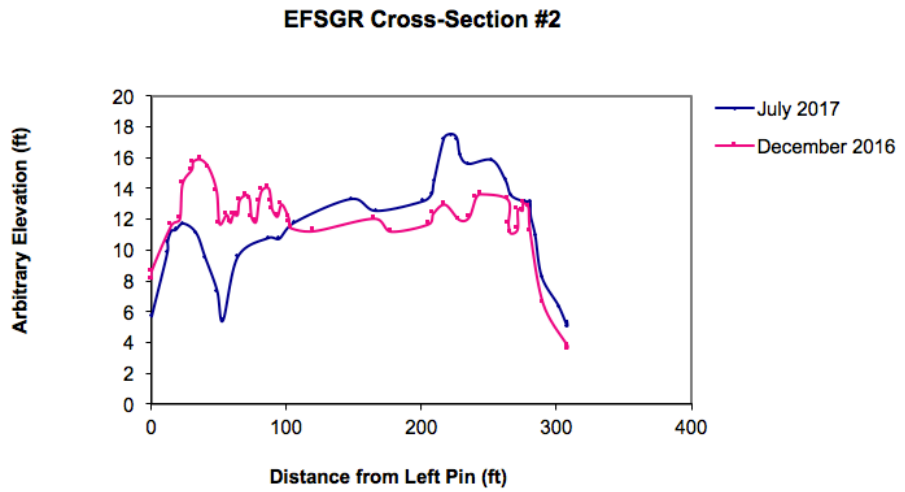

Figure 3. Comparison between cross section #2 from 2016 to 2017.

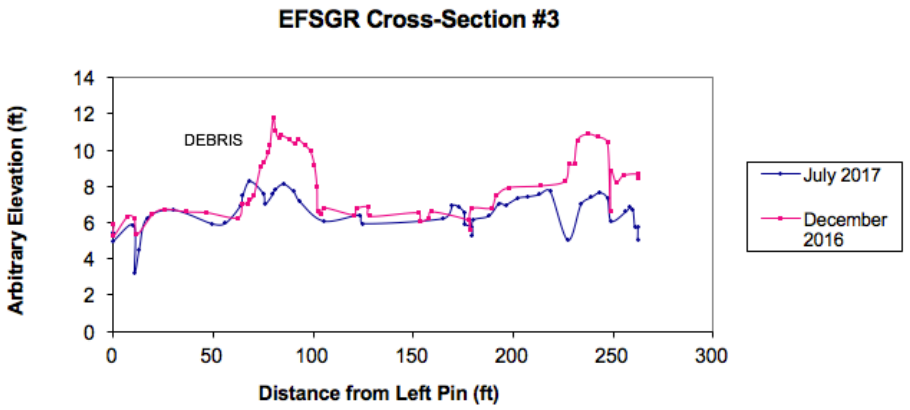

Figure 4. Comparison between cross section #3 from 2016 to 2017.

	% Fast Water	% Slow Water
2016	88	12
2017	87	13

Figure 5. Comparison between features of the stream in 2016 and 2017.