

## Jillian Whiting's Individual Contribution Page

### Individual Contribution:

Spring 2016:

This semester my team hopes to learn about if there is preferential filtration of flocs at constrictions. We want to record a video of how flocs interact in a constriction of a filter. Past research on the milli-sedimentation and StaRS Filter Theory teams predicts that flocs are removed the best at constriction points in a filter. This could lead to a better filtration by adding more constrictions.

Fall 2016:

The semester my team hopes to determine the viability of a milli-sedimentation apparatus. This is merging sedimentation and filtration into one by using coffee straws as small plate settlers and large pores of a filter. My team will decide if this can clean the water and if it possible to clean this apparatus easily. We will also use red dye to determine how the flocs move in a system like this.

Spring 2016:

This semester my goals are to research and design a contact chamber to enhance the rapid mix process. Currently there are high coagulant losses to the walls of the rapid mix pipe which is a waste of money as well as the possibility to create blockages. A contact chamber should facilitate increased diffusion of coagulant without losses to walls. This semester my team will design and build a contact chamber and conduct experiments to determine the best geometry and residence time for proper coagulant dosage. Hopefully this design will reduce coagulant demand by plants and make a small-scale plant more possible.

### Fall 2015 Team Goals:

The current foam filter system in El Carpintero lacks a flocculation system and we suspect adding one would improve the efficiency of the overall system. We expect that the addition of a flocculation system would reduce the amount of coagulant and foam needed to properly filter the water and would improve cleaning. The sub-team is responsible for designing and building a bench-scale flocculator system to test collision potential in conjunction with a bench-scale foam system to test pore size and headloss of overall system. We hope to better model the impact of flocculation and the possibility of adding a full-scale system in El Carpintero.