

CLEANING UP MUDDY WATER

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Sediment, or eroded soil, is one of the most widespread water quality impairments in our streams, lakes, and coastal waters. When it gets into our water, it can ruin habitat, greatly reduce the numbers and types of aquatic organisms, and make the water unsuitable for recreation. In addition, it greatly increases the cost of treating the water if it is a drinking water source. Sediment is usually coming from farming operations that expose the soil, eroding stream banks, and construction activities that disturb or remove vegetation. The impacts on our natural waters can often be seen during and after large storm events, when streams and lakes turn brown or red as a result of all the suspended sediment.

Drinking water which comes from lakes and rivers is usually treated with one or more chemicals to remove the sediment, algae, and other materials suspended in the water. This same technology can be applied to stormwater to remove the sediment before it gets into our streams and lakes, and it is beginning to be applied in many states. While sediment removal is simple to accomplish in the controlled conditions of a water treatment plant, it is much more challenging on an ever-changing construction site where when, where, and how much erosion and runoff will occur is hard to predict. In spite of those challenges, we have had success in removing a large proportion of sediment in muddy stormwater runoff.

The research we are currently conducting involves characterizing the interactions between the sediment and the chemicals used to “clump,” or flocculate, the particles into larger particles that will settle rapidly. There are many types of sediment, each with unique chemical and physical properties, and there are many choices of chemicals to flocculate them. The intern will work with a team of scientists, technicians, and students to help determine how to optimize the flocculation process to minimize the amount of treatment needed and maximize the amount of sediment removed from stormwater.