

Asking Sausal Creek How It's Feeling: *Our bioassessment monitoring effort restarts*

The FOSC insect monitoring of Sausal Creek is up and running!

After a hiatus of several years, we are going to be performing biological monitoring of aquatic benthic macroinvertebrates in order to assess the overall health of the creek.

Aquatic Benthic Macroinvertebrates (or just Macroinvertebrates for short) are animals without backbones, such as insects, worms, clams, snails that live in streams, lakes, river, ponds, etc... All macroinvertebrates have environmental conditions that they require to live; some are more sensitive to poor environmental conditions than are others. Since these organisms have this relationship with their environment, studying what lives in your stream can provide an indication of the overall health of a stream.

On Sunday, November 6, 2011, seven volunteers performed a macroinvertebrate survey on a section of Sausal Creek in Dimond Park. We collected samples, which were later released back into the creek alive, sorted and identified them.

Pictured below is our sample location, just opposite the children's play structure in Diamond Park.



Pictured at left, the team cleaning the collection net and collecting all of the macroinvertebrates in a composite sample.

We are using a method of the Rapid Bioassessment Protocol from the Environmental Protection Agency.

Why are we doing this?

-We are using a biological method to assess the health of the creek. The organisms that live in the creek spend a substantial percentage of their lives in the creek, so they are good indicators of whether the creek is healthy enough to support a diverse population of organisms.

-The method that we chose is a rapid enumeration of the organisms, so we can sample several sites in a single field trip. This is important since we rely on volunteers, and it's going to get cold and wet in the coming months.

-By identifying the insect larvae down to the family level (the level just above genus) we can examine the diversity of the population. We can also study many other metrics like dominant Taxa (which is a grouping of similar organisms), Functional Feeding Groups to understand food web relationships, and also EPT ratio, which compares the ratio of the number of mayfly larvae (Ephemeroptera)/stone fly larvae (Plecoptera)/caddis fly larvae (Trichoptera). The EPT ratio is used to study the health of creeks throughout the US.

-By sampling multiple sites over the course of the coming year, we plan to develop a feel for what the creek looks like as it moves from the more undeveloped reaches in Joaquin Miller Park down to the more urbanized Dimond Park area.

-We ultimately want to be able to use our data to make decisions on the best and most cost-effective ways to improve the ecology of the creek.

-And we want to educate a cohort of volunteers with expertise in insect identification for future field trips for both interested adults and for children.



Volunteers pictured at left are Hilary Powers, Travis Peterson, Carol Kuelper, May Chen, and Pamela Beitz sort and key out the sample. Not shown: Kathleen Harris and Michelle Giolli.



Pictured at left, the organisms are sorted out in ice-cube trays, keyed out, and counted. Above, the middle compartment features some damselfly larvae.

What were our findings?

-The method that we decided on can be carried out in a couple of hours. All of our volunteers either had some insect ID experience or were able to pick up the basics very quickly.

-We collected a total of 322 organisms, the overwhelming majority being mayfly larvae; family of small minnow were mayfly larvae. This was expected. We found some caddisfly larvae, which we haven't seen for some time.

-The data was entered in a spreadsheet, which is available to anyone who is interested. It's too early to draw any conclusions about the health of the creek with just one sample. But each time we sample, the data will go into our database. Eventually, we will have a decent picture of the invertebrate populations in the creek.

We're already planning our next field trip for January 8, 2012. Contact Kathleen Harris at kathalini@comcast.net or Megan Hess at field@sausalcreek.org for details.