



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Emily Engle; Quinn Rogers	Project Number S0810
Project Title Biomonitoring: Water Quality with the Use of Benthic Macroinvertebrates	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of monitoring the Benthic Macroinvertebrates of the San Lorenzo River at Henry Cowell State Park is to determine the health of the river by analyzing biodiversity at two sites.</p> <p>Methods/Materials We got a DFG Scientific Collecting Permit from the DFG License and revenue Branch. Once we received our permit we chose the sites to collect our samples from. We choose 3 riffles within the river roughly 3 meters away from each other. Begin sampling by placing a net directly on the substrate and make sure the net is perpendicular to the flow of the stream. After placing the net into the water, begin to rub the substrate within a 1X2 foot area in front of the net. Do this by rubbing rocks by hand under the water in front of the net; the flow of the water will carry the materials into the net. After exposing the net to the substrate for 1 minute, remove the net from the river and remove all large debris and inspect for any BMI's. Label a jar with the site name, location, and date. Then place the sample into the jar no more than 2/3 of the way full, and then fill the jar the rest of the way with ethanol. We then cleaned our sample to ease the sorting process. Then using the Measuring the Health of California Streams and Rivers manual we sorted the BMI's into their taxinomic groups.</p> <p>Results We found that our Downstream site's sample had:1 Acari , 10 Amphipoda , 2 Hirundinea , 1 Oligochaeta, 1 Ephemeroptera, 7 Plecoptera, 10 Trichoptera, 20 Diptera, 19 Coleoptera, 3 Odonata, and 3 Hemiptera. Our Upstream site had: 3 Acari , 4 Amphipoda, 2 Gastropoda, 2 Pelecypoda, 1 Plecoptera, 19 Trichoptera, 42 Diptera, 20 Coleoptera, and 2 Odonata.</p> <p>Conclusions/Discussion Overall the San Lorenzo River at Henry Cowell State Park has good water quality according to our combined site's score of 2.45. This means that the pollution levels from human populations are minimal. This score also means that the dissolved oxygen levels are adequate to support aquatic life, such as Ephemeroptera (Mayfly), or Plecoptera (Stonefly). These results also suggest that there is no pollution introduction between the upstream and downstream sites, since the quality increased from the upstream site to the downstream site.</p>	
Summary Statement Using Bentic Macroinvertabrates we are determining the health of the San Loerzo River.	
Help Received	